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East Europe Report

ECONOMIC AND INDUSTRIAL AFFAIRS

No. 2131



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PRODUCT STRUCTURE, CEMA RELATIONS DISCUSSED

Budapest NEPSZABADSAG in Hungarian 26 Apr 81 p 3

[Article by Peter Lovasz: "Our Product Structure and CEMA"]

[Text] Economists, engineers and technicians have been racking their brains for a long time to develop the most economical methods of production. Although so far they have been unable to discover any principle that applies uniformly to every branch and sector also in the long run, in most cases it has been demonstrated that the ratio of cost to output is generally favorable when goods are produced in large series. This seems to be a reliable starting point in formulating a strategy for economic policy, provided that we also know the specific commodities and commodity groups for whose production sufficient raw materials and trained manpower are available, i.e., the ones whose conditions of production are given or can be created economically.

Will There Be a Buyer?

However, this is merely one side of the problem. We must also know whether we will be able to find a buyer, one who will require in sufficiently large quantities the products that we produce.

The gist of the problem was formulated in the resolution that the MSZMP Central Committee adopted in October 1977: in accordance with the requirements of the times, the production structure of our economy must be transformed. To this end, a significant proportion of the available resources must be concentrated on the development of those sectors in which our productivity lag and technological lag in relation to the world market are relatively the smallest. Thus we are speaking of the stepped-up development of selected sectors, or of selective development. Among the sectors that already now are the best ones, it gives preference to the sectors that we will be able to keep over a longer period of time at the level which meets the requirements of the foreign markets, and where our prospects of selling are realistically ensured or can be ensured.

There can be hardly any doubt that these conditions have been met in the past, and will be met also in the future, primarily within CEMA, particularly in our relations with the Soviet Union. For the most important items

in commodity trade with CEMA countries are specifically the products that play a key role in the development of the economy's structure and in the modernization of the product structure.

Motor Vehicle Production an Example

The performances of the most successful engineering enterprises today, for example, can be attributed mostly to Hungarian-Soviet cooperation. That the Ikarus Factory is able to produce modern buses in series of 12,000 to 13,000 buses a year, which is a significant output also by world standards, can be attributed to the fact that in long run the Soviet Union is a secure and quantitatively large market for this factory. Going further, the success of the central development program for the production of highway vehicles has been guaranteed by Hungarian-Soviet cooperation that not only provided the foundation for economical production through the quantities of the deliveries, but has helped to achieve success for the Hungarian vehicles and subassemblies on the world market also through the intensification of specialization and cooperation.

This applies to other sectors of engineering as well, for example, to the computer industry or to the production of telecommunications equipment. A few years ago, Hungary's quantitatively very modest stock of computers consisted almost exclusively of computers imported from capitalist countries. CEMA cooperation has proven fruitful in at least two ways. On the one hand, the production of certain types of computer equipment on a relatively high level was introduced in Hungary, on the basis of specialization and cooperation agreements. On the other, computers are finding application in more and more areas of the national economy.

No less significant is Hungarian-Soviet or Hungarian-Polish cooperation in the chemical industry. Production specialization and cooperation in the chemistry of olefins, in the pharmaceutical industry, in the production of plant protectants, manufactured fertilizers and synthetic fibers have created the conditions for economical production, and at the same time have permitted better supply of the demand, in terms of quality and assortment. But outstanding results can be cited also by the enterprises participating in cooperation within agriculture and the food industry, in the aluminum industry agreement or in metallurgical cooperation.

It will be worthwhile to characterize with a few data the relationship that exists between our trade with the Soviet Union as our most important trading partner, and the transformation of our economic structure. On average during the past few years, about 60 percent of our output of buses was shipped to the Soviet market. Farm and food-industry products account for 17 to 18 percent of our export. The Soviet Union is one of our largest customers for meat and poultry. It should be noted, for example, that the managers of the Babolna State Farm were recently awarded high-level Soviet decorations, for the poultry-breeding plants that the farm designed and exported to the Soviet Union.

Convincing Data

Materials, products in the nature of materials, and sources of energy account for approximately 70 percent of import from the Soviet Union. We get from the Soviet Union the bulk of the petroleum, iron ore and phosphate used in Hungary. At the start of the Fifth Five-Year Plan, a major proportion of the stock of tractors and grain combines in agriculture was of Soviet origin, and in five years 22,000 additional Soviet tractors and 7,700 additional combines started working on our fields.

However, these trade figures apply only to the most important products. More typical of the quality of cooperation is the fact that nearly 40 percent of the trade turnover, and nearly 60 percent in engineering, is transacted within the framework of specialization and cooperation agreements. As the more advanced modes of the international division of labor, the forms of specialization and cooperation that are becoming increasingly dominant in trade within CEMA, and in Hungarian-Soviet relations in particular, have not only become decisive factors of socialist integration, but they significantly influence also the position that the member nations occupy in the world economy. For specifically the products of the listed sectors--in other words, of agriculture and the food industry, automotive industry, petrochemical industry, and metallurgy--are the products most in demand also on the dollar-denominated markets. Therefore it unambiguously follows that the long-term restoration of external economic equilibrium, the liquidation of our dollar-denominated balance-of-trade and balance-of-payment deficits, depends to a large extent also on structural-development solutions that are closely linked to our cooperation with the socialist countries and with the Soviet Union in particular.

This fact becomes even clearer if we consider the possibilities of our energy consumption in the more distant future. It is not a bold prediction by any means if we say that our country's energy consumption will increase even if we economize more and improve the efficiency of energy consumption, i.e., if we produce a unit of product with less energy consumption than previously. For energy consumption, in production as well as by the population, will increase at the same rate that we replace workers with machinery, automate the production process and materials handling, and improve the equipment of households with appliances and fixtures. We must earn the foreign exchange to pay for this increase in consumption, and in the long run this could hardly be imagined without our expanding cooperation with the Soviet Union.

Despite the Problems

It would be exaggerated and unwarranted optimism to claim that the economic structure's modernization based on bilateral and multilateral socialist cooperation is entirely free of problems. Especially now when the shocks in the world economy and depression on the capitalist markets are creating difficulties also in the economies of the socialist countries. Added to this is the situation that has arisen within CEMA itself, as a consequence of the

natural process of development: the member nations, one after the other, are coping with the problems of changeover from extensive to intensive development. Because of the parallel capacities built earlier, there is oversupply in some products, and shortages of others. A considerable problem in the intensification of relations, for example, is the absence of a specialized production base for subassemblies and standard parts, i.e., engineering industry, or manufacturing in general, is mostly advanced in the individual countries but lacks suitable supplier industries. Great and as yet untapped opportunities for CEMA cooperation still lie in this area, and it is in the vital interest of every member nation to utilize these opportunities.

All this, however, does not alter the essence of the problem: secure growth and development of the economic structure and product structure can be based in the long run primarily on cooperation with the CEMA countries and with the Soviet Union in particular. This provides the coverage for supplying the demands of production and consumption, and it makes possible the expansion of export allocations on an economical scale.

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MINISTER REVIEWS 1976-1980 FOREIGN TRADE ACTIVITIES

Sofia VUNSHNA TURGOVIYA in Bulgarian No 3, 1981 pp 3-8

[Article by Khristo Khristov, minister of foreign trade: "Foreign Trade Results and Prospects"]

[Text] The Seventh Five-Year Plan was one of the most dynamic and fruitful periods in the development of our socialist economy. Its main feature was the further successful implementation of the strategic task formulated by the PCP of upgrading social production effectiveness and quality of output and, on this basis, achieving the stable and dynamic development of the economy and the ever better and more comprehensive satisfaction of the growing material and spiritual needs of the people.

Within that period the overall economic potential of the country, as reflected in the gross national product, rose 52 percent, while the national income rose by about 40 percent.*

The 7 billion leva's worth of capital investments made in 1980 exceed the average annual investments in the Sixth Five-Year Plan by 61 percent. The main direction followed by the country in its intensive economic development was that of the modernization and technical advancement of the material base. The main emphasis was the further priority development of industry as the base of the entire national economy and, above all, the most progressive and structure-determining sectors such as power industry, machine building, chemistry, instrument manufacturing, electronics and electrical engineering. Today the share of industry in the national income has reached 52 percent. It is on this stable basis that our agriculture crossed a historical boundary by becoming a specific sector of the national economy, saturated with modern equipment and mechanisms, while agricultural labor is becoming to an ever greater extent a variety of industrial work.

It is precisely these results, taken in their totality, that convincingly and categorically prove that the NRB [Bulgarian People's Republic] is a modern industrial-agrarian state. In practical terms, this is the actual result and brilliant implementation of the strategic task set by the April 1956 historical BCP Central Committee Plenum.

The overall aspect of the past five-year plan is characterized also by the profound qualitative changes which have taken place in the organization and management of public production, in which economic factors and indicators became the fundamental yardsticks and main evaluation categories.

* All dates for 1980 are estimates.

The changes which took place in the development and the pace of the national economy in the country's foreign economic relations are acquiring particular importance and meaning. Substantial changes occurred in the role, place and nature of such relations and in Bulgaria's participation in integration processes both within the socialist comity and in the international division of labor as a whole.

Naturally, we could not consider the problems of our economic development, including foreign economic relations, without taking into consideration the major changes which have occurred in the global, mainly capitalist, economy, whose negative aspects are having their effect in our country as well as a result of the considerable share held by foreign trade in the formation of the national income. The virtually entire period of the five-year plan was a period of unprecedented increase in the cost of energy and raw materials and of the worsening of the marketing problem.

Despite the existence of certain adverse and delaying factors, as a traditional form of international cooperation, our trade continued to grow at a faster and stable pace. It rose from 9.8 billion foreign exchange leva in 1975 to the sum of 17 billion foreign exchange leva, quite substantial in terms of our scale, in 1980, which marked the end of the five-year period. Let us note as a lasting trend of this process, first of all, the faster pace at which trade is developing, compared with overall economic growth in terms of physical volume. Whereas the national income is showing an average annual growth of seven percent, the overall industrial output of six percent and agricultural production, one percent, the country's trade averaged 8.2 percent. This trend will be maintained and intensified in the years to come. As the country increases its production capacities and with the application of modern technologies and the use of the most advanced achievements of technical progress the share of the social product used for export, the competitiveness and demand for Bulgarian goods abroad will rise as well. Hence the steadily growing significance of trade in the further successful development of the material foundations of the developed socialist society. This is also the reason for the steadily increasing responsibility of the foreign trade collectives and the foreign trade system as a whole, for the emphatically open nature of our economy has made it quite sensitive to the influence of and changes in the international markets and the end results of foreign trade activities.

The deep structural changes which were made in the national economic complex during that period were paralleled by substantial changes in the structure of trade and, above all, exports. At the end of the five-year period industrial goods accounted for 96 percent of all exports. The end of the Seventh Five-Year Plan is characterized by yet another significant fact in this respect. The share of machines and equipment reached 47.7 percent, thus entirely balancing similar imports. Unquestionably, in the next five-year plan and subsequently, the basic strategic tasks set by the party in the field of the economy will be resolved mainly with the help of this revolutionizing nucleus, which is the carrier and stimulator of scientific and technical progress in a modern economy.

The output of the other structure-determining sectors, such as chemistry, electronics, electrical engineering, instrument manufacturing, and others, are entering the area of trade at a rapidly growing pace. For example, indicative growth rates

have been achieved in the electronic and electrical engineering industries. Bearing in mind the fact that this is an entirely new sector developed by the country, which is already accounting for about 11 percent of the overall volume of exports, we can quite clearly draw the conclusion that it plays an important role and holds an important position in the structure of trade as a whole and, particularly, in terms of its future development.

Most of our trade continues to be with the socialist comity. The implementation of several major integration measures involving CEMA-member countries resulted in the rapid expansion of trade with the socialist countries in the five-year plan. In 1980 it accounted for 75 percent of the country's overall exports.

The Soviet Union has invariably held a leading position in our trade, accounting for nearly 54 percent of the total. This considerable result is, in fact, a legitimate lasting trend which confirms categorically, yet once again, that all our successes in the building of socialism are the result of the close unity of action and fraternal mutual aid with the Soviet Union and the CEMA-member countries. We import from the USSR many highly productive machines and equipment, modern technology, fuels, raw materials, and materials needed for the production of more finished goods which embody the latest achievements of science and technical progress.

At the same time, most of our specialized export commodities, such as machines, equipment, foodstuffs, consumer goods, and so on, are sold on the huge Soviet marketplace. This guarantees a secure and effective market for our output and creates a durable and safe foundation for the normal and rhythmical functioning of the "production-marketing-production" cycle which is the dynamic essence of the national economic complex.

The considerable growth of trade achieved with the other fraternal CEMA-member countries is the result of both the steady increase of reciprocal needs and the increased production and export possibilities of each one of them. The general conclusion prevails that today we can turn directly to our partners in the socialist comity to a far greater extent and for a considerably wider variety of goods.

The new, more complex and more progressive forms of operation which reached a more mature stage in the course of the five-year plan have left a deep mark on our economic relations. We have laid the foundations for the long-term comprehensive development of integration processes over the next 10-15 years. In this connection the long-term target programs for cooperation, which essentially represent expanded multilateral work plans play an important role. Their implementation will offer our country additional advantages based on the socialist division of labor. At the same time, several specific programs were formulated and adopted on a bilateral basis. They mobilize and direct the forces and means of the partners in individual production facilities and areas in which they are particularly interested.

The general plan for specialization and cooperation in basic sectors, adopted by the NRB and the USSR for the period through 1990, can be justifiably considered as the most important example of such a broad long-term program for production and scientific and technical integration. Currently we are implementing 80 agreements

and treaties for specialization and cooperation between our two countries. They cover the basic sectors of machine building, electronics, electrical engineering, agricultural machine building, the chemical industry, automotive manufacturing and others.

The practical results of the different forms of specialization and cooperation between our fraternal countries convincingly prove the viability of the socialist economic community and the high economic results of this broad and all-embracing process. The socialist economic community is also a reliable shield protecting us from the destructive influence of the economic crisis in the capitalist world and insuring our stable pace of development.

Let us point out that almost one-third of our trade with CEMA-member countries consists of cooperated and specialized deliveries. The USSR accounts for 35 percent of this total.

The production of many items in which the NRB has specialized meets 80 percent or more of the needs of some of them for such products. This includes mainly forklift trucks, electric hoists, gas operated lift trucks, electric motors, pumps and items produced by the electronic and electrical engineering industries.

Our trade with the nonsocialist countries has also developed rapidly on the basis of the increased economic potential of our country and its greater export possibilities. Over the past 5 years it almost doubled. Exports showed a particularly substantial increase.

Our economic relations with the developing countries increased considerably. Fruitful results were achieved in the areas of trade and other forms of cooperation, particularly with the young countries following an autonomous and independent path of development, who accept our partnership with a feeling of trust and willingness. Our relations with such countries, based on the solid foundations of equal participation, reciprocal advantages and respect for national independence, were shaped through the reciprocal visits of the heads of our countries and the agreements concluded in the area of economic cooperation.

In addition to a considerable amount of trade, joint efforts for the discovery and maximum utilization of raw material and energy resources in such countries, the development of their production capacities in promising sectors and infrastructural targets, the training of local cadres, and so on, are being increasingly developed. Of late, successful steps have been taken in the areas of industrial and market cooperation, with the possibility of selling jointly produced goods in third country markets.

At the same time, the NRB is firmly encouraging, at all levels and in all international meetings, the making of decisive changes in the existing international economic order in the direction of achieving equitable and full partnership with such countries.

Regardless of the many negative factors, our economic relations with developed capitalist countries have been expanded considerably as well. In addition to the traditional goods included in reciprocal trade, our exports already include many

industrial items, essentially those produced on the basis of socialist specialization and cooperation. In 1980 the share of this group of countries reached about 16 percent of our overall trade, with a trend toward a further steady growth. However, we must clearly state that the development of economic relations with the developed capitalist countries, for which all necessary conditions exist, is being artificially limited by many restrictions blocking the sale of our goods on the Western market, despite the clearly expressed interest of Western business circles in our export goods. This is caused both by the economic difficulties experienced by these countries, as well as their unrealistic and nonconstructive position held in talks between CEMA and the EEC, which are focused on secondary problems of relations between the two economic communities.

Covered by the principled position assumed by the socialist countries toward the Western countries, and the established principles of international economic relations, such as equality, reciprocal interest and noninterference in domestic affairs, the NRB is doing everything possible to encourage economic cooperation with these countries in the spirit of and in accordance with the Helsinki Final Act. The good successes achieved in the development of some new forms of cooperation are largely the result of this policy. Currently our economic and foreign trade organizations are working on 50 different agreements and accords for production and scientific and technical and market cooperation with well known large Western companies.

Major successes were achieved in the field of engineering activities as well. Bulgaria is assuming ever stronger positions in this area which is relatively new to us. It is convincingly earning greater prestige in neighboring and distant countries. In recent years significant quality progress has been made in the activity of our specialized engineering organizations, such as the closing of the entire production cycle and the building of complex industrial projects delivered key in hand. In itself, this fact is yet another confirmation of the increased economic, cadre and scientific and technical potential of our country and of the acquired organizational and economic experience. This is a good foundation for the further dynamic development of such promising activities.

The past period of development of foreign economic relations was characterized also by the new approach adopted concerning the country's foreign exchange problem. This represents a considerable and unquestionable success not only for those working in this area but for the entire country. The main credit for this goes, above all, to the Foreign Exchange Commission of the BCP Central Committee Politburo, personally chaired by Comrade Todor Zhivkov. This is the second year in which our balance of trade payments has been very positive, particularly in the area of capitalist currencies.

Everything achieved by our country under the guidance of the BCP in the field of foreign economic relations represent a stable and reliable foundation for the further dynamic and accelerated development of this sensitive area in the new five-year period and in longer-range terms.

Comrade T. Zhivkov earmarked comprehensively and with extreme clarity the basic economic tasks in his speech at the July 1980 BCP Central Committee Plenum. He

pointed out that the 12th party congress will mark a period of profound quality changes in our socialist economy. In the Eighth Five-Year Plan we shall pursue the practical implementation of the party's course of high effectiveness and quality under contemporary conditions, the systematic application of the economic approach and new economic mechanism, the decisive improvement of public labor productivity and, gradually, the accelerated advancement toward the level reached by the developed countries. The purpose is to make the Eighth Five-Year Plan a five-year plan of technical progress, of intellectualization of labor in our country and of raising our agriculture to a new level of development on the basis of the rapid and energetic application of the contemporary most advanced achievements of the scientific and technical revolution and worldwide experience.

Foreign trade as well has been assigned an active role in the practical implementation of such tasks leading to the further ascending and qualitative development of the national economy. Its help in improving social labor productivity will be expressed in the further increase of the role played by foreign trade and foreign economic activities.

Particular attention will be paid to the further improvement of exports by raising the share of goods exported by the machine building, chemical, metallurgical, electronic and electrical engineering industries. We shall increase exports of new and improved goods with high technical and economic indicators and increased competitiveness on international marketplaces. Production intellectualization will lead to the manufacturing and increased share of export goods of essentially new consumer purposes and with unique technical solutions, multiple-element machine systems for comprehensive services, and multiple-use goods of increased precision and higher physical-mechanical characteristics. In this connection we shall increase our exports of goods related to the development of scientific and technical progress, such as hydraulic, pneumatic, robotic, precise machine building, instrument manufacturing, and other goods. We shall continue to develop the export of goods with a higher level of processing and with intellectual components and relatively lower production outlays for raw materials and energy. We shall also considerably increase the export of intellectual services, engineering activities, patents, licenses and know-how, and the assignment of highly skilled specialists to work in other countries.

One of the basic factors which determine public production effectiveness and labor intellectualization in all national economic areas is the application of the achievements of scientific and technical progress. In the Eighth Five-Year Plan our country will continue to import the most advanced highly productive machines and equipment. It will purchase licenses for new progressive technologies and for the mechanization, chemization and automation of production processes.

The expansion and intensification of scientific and technical integration with the USSR and the other socialist countries will play an important role in the further intellectualization of the production process. The development of joint scientific research and development activities with the fraternal socialist countries, the USSR most of all, will enable us to save time, forces and funds, and to make more efficient and rational use of our scientific potential in the solution of complex scientific and technical problems of economic development.

Scientific and technical integration will lead to the appearance of new Bulgarian scientific and technical accomplishments and to the development of production and export of modern complex and highly productive machines and equipment competitive with similar goods produced by countries most developed in this area and offered on the international marketplace. On this basis not only Bulgarian exports but scientific and technical cooperation with nonsocialist countries and the reciprocal exchange of patents, licenses and know-how will be developed further.

By broadening its markets, foreign trade creates prerequisites for the utilization of the advantages stemming from the participation of our country in the international division of labor. The size of the international markets enables us to produce in optimum series, to upgrade social labor productivity and to lower production outlays per unit of output. The further development and intensification of integration processes with the USSR and the remaining CEMA-member countries play an important role in this respect.

Our country will continue to master the production of a number of machine building and other industrial commodities on the basis of international production specialization and cooperation within the socialist comity, with a view to their successful marketing on the international capitalist marketplaces. This way, economic cooperation and intensification of integration processes with the USSR and the other CEMA-member countries not only do not restrict our possibilities of trading and cooperation with third countries but, essentially, constitute an important prerequisite and condition for their dynamic development.

The long-term nature of international specialization of production, involving CEMA-member countries, insures the marketing of goods on a long-term basis. That is why our country will try to increase in absolute and relative terms its specialized output for exports to the USSR and the other socialist countries. This creates a stable base for the planned development of foreign trade and of the entire national economy.

Foreign trade will contribute actively to the further effective development of domestic production and to improving public labor productivity and the quality of goods by importing energy carriers, raw materials, materials, and comestible and noncomestible consumer goods.

The inadequate correlation between domestic production and available raw materials and energy resources is a characteristic feature of our economy. That is why in the Eighth Five-Year Plan as well imports of fuels, metals, minerals and other raw materials will remain exceptionally important. This problem faces the other CEMA-member countries as well with particular urgency, for which reason in recent years they have been joining forces in building production facilities on USSR territory. We are converting to the integrated solution of common economic and production problems in order better to satisfy needs for raw materials and energy. Particularly important to our country in this connection is its participation in the joint construction of projects on Soviet territory. In the Eighth Five-Year Plan Bulgaria will import goods from projects in whose construction it has participated. Furthermore, during the new five-year period we shall join in the construction of many other important projects in the USSR, such as Krivoy Rog Mining-Concentration

Combine, planned for polyisoprene rubber and methyoniin, the Boguchansk Cellulose Plant and others.

All this indicates that in the next five years and on a longer-term basis major large and qualitatively new problems will be resolved in the field of foreign trade. However, they will have to be resolved under the influence of considerably more complex and less favorable factors which require additional attention, efforts and stress on the part of foreign trade collectives and managements.

In this connection, we must eliminate some shortcomings as a necessary prerequisite for progress. We know, for example, that success in foreign economic relations is achieved largely with the extensive method, by including in trade deals a wide range of material resources in considerable amounts. However, a similar approach in the solution of the foreign exchange problem in the Eighth Five-Year Plan would conflict with the strategic course of comprehensive and overall intensification of activities in all economic areas. The foreign trade sector would find itself in the unenviable position of allowing a draining of the national income. Hence the urgent requirement of accelerated intensification of foreign economic relations in order to increase their national economic effectiveness. A positive balance of payments must be achieved as a result not only of volume indicators but mainly by increasing the amount of goods for export and the thrifty expenditure of import funds, as well as a consequence of increasing the quality and effectiveness of trade within the framework of the existing volume, and increasing exports of highly effective science-intensive goods, and of greatly effective engineering and other foreign economic activities.

Additional measures must be taken to implement the comprehensive program for the accelerated development of trade and economic relations with those among our partners who have expressed the willingness and readiness to engage in production and engineering-technical cooperation on a long-term basis, which offers the opportunity for the more complete and effective utilization of the advantages of the international division of labor.

Particular attention should be paid and additional measures taken to insure the effective implementation of the program in the area of the transfer of progressive technology and licenses and their rapid practical utilization.

Improving the application of the economic approach in the foreign economic sector requires the solution of important problems. Council of Ministers decree No 25 provided significant additional opportunities for increasing the effectiveness of foreign trade. The practical results achieved in many leading units and in the system as a whole convincingly prove the existence of real possibilities provided by its basic stipulations. However, the measures taken for directly relating the production process to the international market and the influence of the marketplace on production activities, with all resulting consequences, are still insufficiently effective and purposeful. Sluggishness and inertia in this respect must be surmounted as quickly as possible by the creation of foreign trade associations and economic organizations which, while retaining the unquestionable advantages of consolidated foreign trade trusts, will insure the direct participation of economic organizations in the positive or negative results of activities abroad.

In this connection another important task is the drafting of the corresponding documents on the normative base and the systematic implementation and establishment of the economic approach and mechanism in planning, prices, credits, financial conditions, and so on, without which the economic mechanism would lose its significance and strength.

It is perfectly clear to us that the more rapidly and radically we reorganize our work and the faster we surmount deformations in foreign economic activities, as indicated in some parts of the government, the more completely and comprehensively will such activities be organized on an economic basis and the better will its results become.

We must and we will resolve these problems successfully in order to harmonize the activities of this important area of our economy with the stricter requirements of the 12th BCP Congress and the new stage of the socioeconomic development of our homeland.

5003

CSO: 2200/77

BRIEF FOREIGN TRADE NEWS

Sofia VUNSHNA TURGOVIYA in Bulgarian No 3, 1981 p 8

[Text] New Bulgarian-Soviet Long-Term Trade Agreement

A new long-term trade and payments agreement for the period of 1981-1985 and a 1981 trade and payments protocol were concluded by Khristo Khristov, Bulgarian foreign trade minister, and Nikolay Patolichev, USSR minister of foreign trade, in Moscow, on 28 January.

In the 1981-1985 period trade between the two countries will reach 40 billion rubles, or 37 percent more than in the past 5 years.

The long-term agreement calls for a considerable increase in reciprocal deliveries of machines and equipment and electronic goods, particularly from Bulgaria to the Soviet Union. Reciprocal procurements of consumer goods will be increased as well. The new long-term trade agreement calls not only for a great increase of trade with the USSR but for substantial structural changes as well.

The 1981 trade and payment protocol stipulates that reciprocal deliveries will exceed seven billion rubles.

Bulgaria-Mongolia

Trade talks were held between the governmental delegations of the Bulgarian People's Republic and the Mongolian People's Republic in Ulan Bator, at the end of 1980. They resulted in the conclusion of an agreement for trade and payments between the two countries for the 1981-1985 period and of the 1981 trade and payments protocol.

The agreement was signed by Yondongiyn Ochir, Mongolian minister of foreign trade, and Krust'o Evtimov, Bulgarian ambassador to the Mongolian People's Republic; the protocol was signed by Konstantin Todorov, chief secretary of the Ministry of Foreign Trade, and Yumjaagiyn Ayush, Mongolian first deputy minister of foreign trade.

The documents reflect the trend of growing and more varied Bulgarian-Mongolian trade.

Bulgaria-Poland

A protocol for economic cooperation between Bulgaria and Poland was signed by Todor Boshinov, first deputy chairman of the Council of Ministers, and Roman Malinowski, deputy chairman of the Council of Ministers, in Sofia, on 27 February.

According to the protocol, in the new 1981-1985 Five-Year Plan trade between the two countries will be increased by about 27 percent and will total 2.8 billion rubles. Cooperation will be developed particularly dynamically in machine building, electronics and electrical engineering, with reciprocal supplies accounting for about 70 percent of the total trade volume.

Order of Gerogi Dimitrov

By Bulgarian State Council Ukaze, date 26 February 1981, Comrade Khristo Iliev Khristov, minister of foreign trade, was awarded the Order of Georgi Dimitrov for his great service to the development of Bulgarian foreign trade in the Seventh Five-Year Plan.

Preparations for the Bulgarian Trade and Industry Exhibit in Belgrade

The Bulgarian Trade and Industry Exhibit will be held in Belgrade from 20 to 28 April, in one of the best stands of the Belgrade international fairgrounds. It will cover about 4,000 square meters of roofed and 1,500 square meters open area.

A plan for the artistic display of the items, developed by a collective headed by architect Ts. Khadzhiyska and painter St. Kurtev, was adopted.

Bulgarian machine building will be represented by the world famous Bulgarian firms Mashinostroy, Balkankarimpeks, Tekhnostroy, Tekhnimport and Koraboimpeks and the Intransmash Bulgarian-Hungarian Company. Elektroimpeks and Izotimpeks will exhibit a variety of electronic apparatus and instruments. Our chemical industry will be represented by Farmakhim, Khimimport and Khimkomplekt. Bulgarian light and food industry exhibits will be displayed as well.

Texts, diagrams and photographs will display the development of trade and economic cooperation between Bulgaria and Yugoslavia.

5003

CSO: 2200/77

LACK OF SUFFICIENT CONSUMER SERVICES DISCUSSED

Open Letter to Power Plant Director

Sofia POGLED in Bulgarian 9 Mar 81 p 2

[Open letter to the director of Sofiya Thermoelectric Power Plant by Petko Dukhnev, 12 Asen Zlatarov Street]

[Text] Comrade Director: We know that the Sofiya Thermoelectric Power Plant is one of the first of its kind in the capital to provide hot water and steam to thousands of Sofia people. The event occurred some 25 years ago. At that time we tossed our hats in the air and rejoiced at the availability of steam heat and hot water. However, this did not turn out well. We reached a point at which your activities and services have become our nightmare, our permanent nightmare. Every 10 days or so one pipe or another would burst. It is true that the pipe is an inanimate object and would crack when its time comes, regardless of exhortations. However, when an animate management clearly realizes that the type of metal used for the pipes does not last more than 20 years, that management should not be telling the citizens that the pipes are old, for which reason they burst.

You too, Comrade Director, curse the people in electric power supplies for not doing their jobs properly whenever you are left without electricity for five hours running, in the evening. You start cursing at those who have not sown, harvested, packaged and transported a sufficient amount of beans, when they happen to be unavailable. The fact is if an entire district where thousands of people live, children, high school and university students, workers, employees and adults, is left without heat at temperatures of 11, 9 or even 6 degrees below zero, the health consequences may be quite serious and may affect all our economic and social activities.

It is true that, when the time to make the monthly payments comes, you are 100 percent active. On a bit of rough paper, in addition to the high and unwarranted figure in leva, you also tell us that if payment has not been made by a certain date our energy supplies will be cut off....Is this not ironical?...

Finally, I would like to ask the following: in the remaining winter months and in subsequent winters could we rely on your steady services? Or else, would it be better to dismantle our radiators and sell them as scrap metal, where they would be more necessary and useful, at least for the present?....Yes or no? Incidentally, your answer will also provide substantial methodical and other aid to the remaining thermoelectric power plants we are following in your wake....

Yours sincerely frozen, Petko Dukhnev.

Meeting on Consumer Service

Sofia POGLED in Bulgarian 9 Mar 81 pp 1, 4

[Report by Petur Stanchev and Ivan Ganev]

[Text] An answer is sought to the following questions:

Who can tell me where shoes like mine could be repaired?

Where could one get food late at night or on Sundays?

Where to go shopping?

Where is the nearest supermarket in this complex?

Who, where, when?...

The journalists, members of the Domestic Policy Section of the SBZh [Union of Bulgarian Journalists], sought an answer to these questions at a meeting with the Sofia People's Council. Their hosts were Angel Ganev, deputy chairman of the Sofia People's Council, Aleksi Aleksiev, chief of the Trade, Public Catering and Tourism Administration, Stefan Zladev, general director of the Main Directorate for Consumer Services and Local Industry, Nikola Nedanov, director general of TsUM [Central Department Store], Stefan Neychev, general director of Domestic Goods Economic Directorate, Iliya Nestorov, general director of Public Catering Economic Directorate, Nikolay Karelski, interim general director of the People's Stores Economic Directorate, and Dimitur Kuchmov, general director of the Bread and Bakery Items Economic Directorate.

The frank conversation was the result of the truly sympathetic attitude shown by the journalists toward the problems of the capital city and their understanding of and respect for previous accomplishments. At the same time, as mandated by the party and, particularly, the draft theses for the 12th BCP Congress, unresolved problems of trade and services in the capital were discussed in a critical spirit.

The collective report which follows deals with the most important problems discussed at the meeting.

Public Services are Still Insufficient

From the article "Wholesale and Retail Interest" published in POGLED, No 3, 19 January 1981, by Zoya Zakharieva:

"This time, my topic is quite personal: the broken heel of one of my boots. The 'breakdown' occurred while I was on my way to the newspaper. I went to the district workshop. The foreman refused. I went to the combine for public services near the Oncological Institute. I was told there that a special machine for such repairs could be found only at No 3 Zhdanov. I took a cab for downtown. The woman behind the counter said curtly: 'We do not do such jobs. Go to 22 V. Kolarpov.' In order to make sure that I would not be refused there as well, I decided to obtain official information by using my press credentials. All of a sudden the impossible became possible: 'We shall not let you go. Absolutely not. Let us first fix the heel and then we shall talk....'"

The journalist's answer: Perambulations with shoes, purses, clothing, watches, music boxes, or anything else that need fixing go on. Why? Is it so complicated to organize a simple reference service so that the citizens will know precisely where to go? If a dry cleaning establishment does not handle leather clothing, perhaps an announcement on its wall could indicate where to go. Or else, if a watch repair shop handles exclusively Soviet-made watches, it should inform the citizens where Swiss-made watches could be repaired.

Let us open the thick "Sofia Information Book." Hundreds of services are listed. How many of them indeed exist? Unquestionably, the information is obsolete and also unquestionably, it lists services which are merely pious wishes.

Answer of the public services directorate: We accept your recommendations on giving information. Our people know what could be found where but, to put it bluntly, they are too lazy to give such information to the people. We have decided to prepare information which will be accessible to the citizens entering any establishment or workshop.

The journalists' answer: What about the location of service workshops? "God only knows," our readers say, and they are right, for it would be difficult to detect any logic in their location. Not everything is in order even in the central part of the city. In a district such as Banishora, for example, whose size has doubled or tripled in recent years, the people are eager for services. The district has no stores or supermarkets at all or, rather, it has as many as when Banishora was a small district. Let us not even mention the case of Mladost or other developments more distant from the center....

Explanation of the Sofia People's Council: The expansion of residential developments does not coincide with that of the service industry. The council has formulated a detailed program of what should be done. The main difficulty, however, is the lack of construction resources. We still owe something to the population of the capital....

Public Catering

Low Profitability is Sofia's "Specialty"

Recollection of an old Sofia resident: Once there was "The Wild Roosters;" there was "The Five Corners;" there was....This sounds like a fairy tale.

There were once in the city many little taverns, little restaurants, bars...which offered bits of spiced meat or a variety of appetizers such as beans with fresh onions; one could drink Karabunary at Tencho's or ouzo at Bencho's. No one had a cookbook but everyone had "something" which only he knew how to make, and the people would go to Tencho's (or Bencho's) for a bite of something tasty and inexpensive, washing it down, naturally, with "something else." Actually, it was more a matter of conversation than of drinking....

The journalist's answer: ...Have you been to "Starije Meste" in Warsaw or "Kalin's" in Prague? Or have you seen those small beer halls, which seem old as the Middle Ages, located on both sides of the stone-paved streets leading to Hradcani? They have their own atmosphere, aroma, spirit! What is the situation at home? ...

We close down an old establishment, usually second or third class, we replace glassware with pottery, we cover the tables with patterned tablecloths, put red sashes around the waiters' waists and reopen the establishment. Please, come in: peasant salad and mixed grill and the prices are according to the category. As a rule, in a folk establishment the prices are in a "luxury" or "extra" category.

Two Answers

First: ...Our plans call for the opening of 40 so-called abandoned taverns, which we intend to convert into cozy and pleasant establishments; they will have not only an attractive interior decoration but proper menus, service and so on. Fourteen of them are already functioning in various places in Sofia. They include Tetevenska Sreshta, Stara Planina and others.

Second: ...We are also planning to turn the area around the Georgi Kirkov market-place, where a lot of old buildings with an interesting architecture may be found, into something similar in atmosphere to the pleasant places found in Prague, Budapest or Warsaw....Our idea is to set up an entire ring of regional establishments with typical regional foods, drinks and furnishings. It is obvious, however, that this will take years to accomplish....

An explanation for the fact that Sofia holds the penultimate place in the country in the number of public catering establishments: In the past 5 to 10 years Public Catering has lost to offices, stores, and others 8 restaurants. Essentially this accounts for almost one-half of our restaurants, the best ones at that. Someone at the meeting mentioned the cheap glasses at Belite Brezi. Let us add that this is not an isolated case. The same situation prevails in virtually all second and third category establishments. The truth is that their prices have not been raised and that they have low maintenance allocations, for which reason they cannot afford modern service standards. In Balkanturist establishments, for example, the profit is about six leva per 100 leva turnover whereas in the institutions we mentioned it is just about 15...stotinki. This situation could be changed only if the Ministry of Finance and the Committee for Prices decide to update it.

What the Data Indicate...

There is an average of 82 seats in public catering institutions per 1,000 population in the country, whereas in Sofia, the Bulgarian capital, a center of international and domestic tourism, and so on, the average is 62.

Again per 1,000 population, the commercial area in Sofia averages no more than 80 square meters, compared with 150 in Veliko Turnovo, 140 in Burgas, 130 in Pazardzhik, and so on.

...A surreptitious investigation made by one of our reporters on 15 February showed that there was a wedding reception at the Balkan Restaurant (for 100 people); a wedding reception at the Cherveno Zname Restaurant (80 people); a wedding reception at the Loven Park Restaurant (200 People); a wedding reception at the TsUM Restaurant....

With luck, one could even find some food. One could find a seat, but one should not expect a menu, for whatever is being served at the wedding reception will be served to the others. A wedding reception is considered a collective celebration.

This is, perhaps, the "aggravation" in the public catering system. It is an open secret that small... are being served, water is added to drinks, and some trade workers, particularly, have turned their jobs into real gold mines for their own enrichment and, naturally, at the expense of the customers!

Admission: We could add that this phenomenon is like a cancer which is very difficult to fight with the familiar general methods such as stricter control, unannounced investigations, and strict penalties....In this respect a great deal is being done, particularly lately: in the fourth quarter of 1980 alone, as a result of stricter requirements, 487 summonses were issued for various violations, 127 people were fired, and 22 were prosecuted. Still....

Possibly, the elimination of this "epidemic" may be achieved exclusively through the most extensive use of the brigade organization of labor in public catering....Great hope attaches....

Working Time

Will the "Time Wasting" Concept Disappear?

Story of an official trip to Sofia: The conference began at noon and I had no time for lunch. It ended around 3 pm and I rushed along Dondukov Boulevard in search of food. All restaurants and snack places were closed. The same prevailed on Graf Ignatiev. Last night I looked for a decent restaurant but since my plane was late, nothing was open after 10:30 pm. I ended up, finally, at Kristal, which stayed open half an hour more. That took care of my per diem for my entire assignment....

The journalist's answer: Sofia is, perhaps, the only capital with which a traveling Bulgarian is familiar where public catering institutions are struggling for the shortest possible working time. It is certain that we are not party to any possible European regulation in such matters.

How about the stores, someone may object. Unlike Berlin and Prague, on Saturdays, for example, in addition to remaining open, our stores are crowded.

Some say that it is a national tradition to shop on Saturdays instead of rest. Nothing of the sort, as this fact is refuted elsewhere in Bulgaria. In Sofia, however, the situation is different. Naturally, being in penultimate place in the country in terms of trade and service facilities, the five working days are not enough for shopping. Furthermore, if the people of Sofia decide to shop Friday night, the stores would have to remain open until midnight. There simply are not enough stores.

Viewpoint of the Sofia People's Council: The trend of extending the working time of commercial enterprises will be continued. This is not very convenient to the salespeople but no other solution exists. The number of establishments which remain open on Saturdays and Sundays was increased substantially in the last two months of 1980. The number of bread stores on duty alone was increased by 112 and so was the number of restaurants which stay open 7 days a week.

The journalist's answer: Here again a disproportion exists. It is quite easy for a person living in the outer districts and who has not stored anything at home to remain hungry on a Saturday or a Sunday. Furthermore, in other districts the bread stores

open at 6 am; milk stores open at 7:30, while meat stores open at 8:30. In such cases, how is one to coordinate one's shopping in a district without a supermarket? Furthermore, many service workshops are closed during the most convenient hours for the citizens. Others open when everyone is already at work.

General speaking, the problem of working hours and of trade, services and public catering in Sofia needs a closer study. No scientific works or entire volumes should be written. We must determine, once and for all, what type of working hour would enable the Sofia people to lose the least possible time. The hours of trade and service stores should not be the product of whim or of confused signals but obey a strictly planned system.

In Lieu of Conclusion

While this material was being prepared for the press, the Sofia People's Council held a meeting at which a comprehensive territorial program was discussed and approved for the city's socioeconomic development in 1982-1983 and of the Sofia People's Council budget for 1981. Therefore, in lieu of conclusion or optimistic ending, let us mention this meeting and its self-critical and constructive spirit which is a good sign now, when on the eve of the 12th congress, we can see even more clearly and even better the future of our capital.

"The organization and standards of trade in the communal and public services in the capital must be made consistent with growing requirements more rapidly. We must surmount the lagging in the building of a material and technical foundation by undertaking its modernization, reconstruction and expansion in the Eighth Five-Year Plan. Shift work must be increased and a more efficient territorial location of trade and communal service enterprises must be established, to provide trade and consumer services by districts and rayons in the capital. The professional training of people employed in such activities must be improved and the hiring of new cadres must be intensified." (From the draft theses for the 12th BCP Congress)

From the Program for Further Improvements of Population Services in the Capital:

Accomplishments....

In the past 2 years 189 new commercial establishments and 42 public catering establishments were opened; 214 retail trade establishments and 128 public catering establishments were reconstructed and modernized.

Storeless selling methods are already being used on sidewalks and other open areas with a total of 280 booths and stands. The number of service institutions and plants has reached 317.

...and Plans

In the days preceding the 12th congress the following establishments will be completed and opened after capital reconstruction: Valentina, on Sofiyska Komuna Street and Graf Ignatiev Street, and Rila Economic Combine, on 61-63 Vitosha Boulevard; the Havana National Cuban Restaurant, at 27 Vitosha Boulevard; the Varshava National Polish Restaurant at the Vl. Zaimov residential district; a food complex of the Central Cooperative Union, at 57-59 Vitosha Boulevard, and others.

Between 1981 and 1983, four production-trade bread combines, 10 production-trade hot snacks establishments, three comprehensive establishments for the production of "French loaf" type bread, a meat refrigeration facility, 10 supermarkets in the residential complexes and districts, a food delicacies combine, and others will be opened on Sofia's territory.

5003

CSO: 2200

MINISTER OF ENERGY OUTLINES PAST ACHIEVEMENTS, FUTURE TASKS

Sofia ENERGETIKA in Bulgarian Mar 81 p 3

[Article by Nikola Todoriev, minister of power supply: "Power Industry's Future Requirements"]

[Text] The collectives of our ministry are providing a worthy welcome for the 12th BCP Congress. The creative efforts of workers and specialists to implement the decisions of the 11th Congress and the results of the 7th Five-Year Plan are proof that the great awareness of the responsible role of the power industry is one of the most outstanding features in the moral portrait of the Bulgarian miners and power workers.

The theses given at the party forum earned the powerful support and met with the strong response of the broadest possible circles of our public. Historical experience and, particularly, the experience of the 25 years since the April Plenum, indicate that every party congress represents a new step forward and each of its programs means progress toward new levels.

The party's scientific program for the development of the economy in the 8th Five-Year Plan and through 1990, as presented in the theses, restresses the growing significance of the energy complex in the solution of basic both economic and technical problems in the 8th Five-Year Plan and through 1990.

In the 7th Five-Year Plan we installed close to 2000 megawatts of new electric power generating capacity, mainly based on local coal and atomic energy. Coal extraction capacities totaling 5,150,000 tons annually were also commissioned.

In a five-year period overall power consumption rose by 42 million tons of conventional fuel. Its average annual growth, however, has shown a lasting positive declining trend: from 9.5 percent in the 6th Five-year Plan to 2.9 percent in the 7th. This is a particularly clear characteristic of the firm course charted for reducing power intensiveness in the national economy, a course which separates particularly sharply the last five-year plan from earlier ones.

Electric power consumption reached 39 billion kwh in 1980, or 10 billion more than in 1975.

Annual per capita consumption rose from 3320 to 4360 kwh over the five-year period.

A total of more than 390 km of 400 kv electric cables were laid and distribution networks were broadened. Even though achievements in this area are insufficient, the quality of electric power supplies in industrial centers and settlements improved and the power system became more stable.

A major step was taken to improve the effectiveness of the power industries. Expenditures of conventional fuel per kwh declined by 17.9 grams in the five-year period. Progress was also made in lowering electric power outlays for generating facilities. This, however, does not apply to losses incurred in the course of the transportation, transformation and distribution of electric power, which remained significant.

But we are pursuing firmly and consistently a line of ensuring economic growth with ever-diminishing expenditures of energy per unit of output and maximum conservation of fuels and energy in the entire national economy.

The dynamic development of the economy through the extensive application of scientific and technical progress, as earmarked in the 12th Congress program, involves a considerable growth of energy requirements in all fields of life. Their satisfaction in the next stage will be ensured through the future development and expansion of the energy base and the intensification of the sector.

Several main and determining problems will have to be resolved in order to reach the planned quantitative and qualitative growth of the energy potential. They are the following:

First: the urgent commissioning of the fourth nuclear reactor at the Kozloduy Nuclear Power Plant, generating 440 megawatts, this very year, and the fifth generating 1000 megawatts, by the end of the five-year plan. We shall thus be able to ensure the planned growth of the percentage of nuclear power generating capacities in the overall electric power output of the country from 12 percent in 1980 to 26 percent in 1985.

Second: urgent commissioning of power generating capacities based on domestic coal, the Maritsa-Iztok mines--the fourth power turbine of the Maritsa-Iztok 3 Thermoelectric Power Plant, generating 210 megawatts, the reconstruction of the Maritsa-Iztok 2 Thermoelectric Power Plant which will work without a drying plant and of two new 210 megawatt turbines which will be installed in the expanded facility, along with other lesser generating capacities.

Third: Rhythmical implementation of the exceptionally stressed and important tasks of the coal mining industry. At the end of the five-year plan we must be able to produce 46 million tons of coal. At the Maritsa-Iztok complex alone the planned production increase equals 52 percent.

Fourth: A great deal of effort must be made in the area of circuit facilities of the power system. Above all, we must lay the planned 400 kv electric cables which will carry the electricity generated by the newly commissioned block. We must also close the 400 kv circuit in order to improve the power system's capability.

It is imperative to continue to improve the condition of distribution grids as well. Our obligations related to the quality of the electric power supply to the consumers are perennial and quite urgent.

Fifth: The improvement of quality indicators and of the effectiveness of the power industry requires the steady optimizing of the operational systems of power plants and power distribution systems.

Sixth: Population services in electrification and heat supply must be improved with the help of new means and the improvement of installed facilities.

This five-year plan capital investments for all activities will be considerably higher compared with those of the 7th. All possible efforts must be made to ensure their use, together with the other departments and organizations with planned assignments in the area of energy development. No one should consider this to be simple and easy. However, there is no other way leading to a power generation balance and the ever better satisfaction of energy requirements.

The good start which was taken in the quarter preceding the congress indicates that we have the necessary forces, reserves and mobilization. Our purpose now is to keep this up. The creative charge accumulated in the period preceding the party congress must be converted into efficient and profoundly planned activities for the successful implementation of the decisions of the congress.

5003

CSO: 2200/78

ACHIEVEMENTS, FAILURES IN FUEL CONSERVATION

Sofia ENERGETIKA in Bulgarian Mar 81 pp 4-7

[Article by engineer Stefan Mishev, Ministry of Power Supply: "Successes and Weaknesses in the Implementation of the Program for Energy and Fuel Conservation in the 7th Five-Year Plan"]

[Text] The problems of increasing the production of energy and ensuring its most thrifty utilization became particularly topical in the 7th Five-Year Plan. An extensive movement for the effective and economical use of fuels and energy developed in accordance with the strategic task formulated by the 11th BCP Congress on achieving high effectiveness and quality in all economic fields, starting with the beginning of 1976. The basic conservation directives were formulated in the national program for the conservation of fuel resources in the 7th Five-year Plan, which was approved by the Council of Ministers, mostly applicable to conservation. A number of governmental decisions and decrees were issued in this respect, concretizing the tasks of achieving additional savings by all ministries, departments and economic organizations and their branches.

The first most significant results, which were further increased in subsequent years, were noted in 1977. In 1980 alone, despite the reduction of planned figures, the basic productive sectors of the national economy saved 337 million kwh of electric power, 196,200 tons of coal, 33,200,000 tons of gasoline, 87,200 tons of diesel fuel and 28,100 tons of fuel oil compared with the planned figures. All in all, in the 7th Five-Year Plan savings totalled 982,000 tons of conventional fuel and 1,364,000.000 kwh of electric power.

This consistent policy brought about favorable changes in the power consumption structure. The share of liquid fuels in the total consumption of power resources declined as the result of the use of hard fuels (mostly local) and natural gas.

The Ministry of Power Supply greatly contributed to such fuel and energy savings as a result of a reduction in outlays for the production, transportation and transformation of electric power. First, for example, conventional fuel outlays for the production of electric power declined from 401 grams per kwh in 1975 to 383 grams in 1980, or by 17.9 grams. In 1980 electric power outlays for the personal needs of power plants declined by 9.59 percent, with overall savings totaling 43 million kwh.

The greatest achievement of the power industry in the 7th Five-year Plan was the construction of Maritsa-Iztok 3 TETs, based on a new direct system for the burning of coal. This reduced specific fuel outlays by 39 grams per kwh. In 1980 alone this represented a saving of 535,000 tons of raw fuel. The same principle will be applied in the reconstruction of the steam generators in the two remaining power plants of the Maritsa-Iztok complex, with expected annual savings in excess of one million tons of raw fuel.

Good achievements in the efficient utilization of electric power were scored by the ministries of foreign trade and services, forest and forest industries, and electronics and electrical engineering, which achieved savings from six to 6.5 percent in annual outlays. The last two ministries achieved considerable savings of liquid fuel as well. The greatest successes in this respect, however, were reached by the Ministry of Transport. In 1980 the ministry saved 18,000 tons of gasoline, 31,400 tons of diesel fuel and 16,300 tons of fuel oil.

This result as well was achieved thanks to the production of new less energy intensive technologies. Thus, for example, the first stage of the general reconstruction of the ammonium production facility at the Dimitrovgrad Economic Chemical Combine was completed. The facility was converted from fuel oil to natural gas use. The reconstruction was based on highly effective Soviet technology with which power outlays per unit of output in ammonium production were reduced by 25-33 percent.

The specialized Industrial Power Supply Scientific Production Complex of the Ministry of Power Supply also accounted for a certain percentage of fuel and energy savings in the five-year plan. The result of its activities in technological tune-up, installation and organization of efficiency measures, in 1980 the combine operated more than 1800 boiler units generating an overall capacity in excess of 23,800 GJ/h, in the course of which efficiency rose from 3.5 to eight percent. As a result of this, about 82,000 tons of conventional fuel were saved in 1980. With proper exploitation of the same boilers in 1981 the fuel outlays will be reduced by more than 250,000 tons of conventional fuels. The work of yet another 120 boiler systems was improved with the help of other organizations and about 20,000 tons of conventional fuel were saved.

Bearing in mind that the country has more than 3400 operating industrial boiler systems, we realize that the stipulation of increasing efficiency by no less than five percent has not been met by more than one third of them. Some economic organizations and their branches should become more active. This applies to economic units which have still not created energy services or have entrusted problems of energy efficiency to individual specialists. This proves that there has been no coordination between the economical utilization of energy resources and the requirements of the new economic approach, i.e., a combination of the interest of consumers with that of the country at large.

In 1980 some ministries allowed overexpenditures for electric power. Thus, for example, overexpenditures of 24,700,000 kwh of electric power and 11,500,000 cubic meters of natural gas were allowed in the chemical industry. As a result of the high external moistening of the coal, due to adverse weather conditions in November and December of 1980, the thermoelectric plants of the Marishki Baseyn SMEK [Economic Mining and Power Complex] and the Maritsa-Iztok SMEK, overexpenditures

totaled 18,000 tons of fuel oil which were used to maintain the stability of the combustion process. The Ministry of Metallurgy and Mineral Resources spent 12,300 tons of fuel oil and 25,700,000 cubic meters of natural gas over and above the stipulated amounts.

The economic ministries drafted fuel-power balances based on the general methodical instructions suggested by the Ministry of Power Supply. However, not all of them were balanced or submitted for approval their own programs for improving fuel consumption efficiency.

The accuracy of balances is largely determined by the availability of power consumption control and management tools. In many enterprises such as the SMK [Construction and Installation Combine] in Stara Zagora, some basic plants of the F. Engels MK [Metallurgical Combine], the dairy processing combine in Stara Zagora, the Rodopa Meat Processing Combine in Kazanluk, the Petko Manolov Canning Plant and others, there is no control-measuring equipment and no request for such equipment has been submitted.

Many processing facilities are not utilizing possibilities for power and fuel conservation. Opportunities for achieving an optimum operational system of industrial furnaces, which are the biggest consumer of liquid fuels and natural gas, and whose effectiveness is lowest, are still not being established or utilized. In the majority of technological processes power consumption is controlled manually and optimum work regimens are not achieved. The condition of compensate facilities used by the majority of steam consumers remains unsatisfactory and losses from non-recirculated compensate are substantial. The use of secondary resources is unsatisfactory in ferrometallurgy, metal casting and others.

In order to ensure the structure of power consumption, the Council of Ministers approved a program for substituting fuel oil for furnace diesel fuel. This will yield considerable savings. All in all, this program is being implemented on schedule. Conducted investigation, however, indicates a lack in most progress of the Dairy Industry DSO [State Economic Trust] and some facilities of the Automotive Transportation SO [Economic Trust]. The ceramics plant as well has fallen behind in their reconstruction schedules.

The national competitions for energy and fuel conservation play a considerable role in promoting the extensive development of the creative opportunities of labor collectives in the area of efficient and economical fuel and energy expenditures. The fifth national competition, held in 1980, showed that considerable progress had been achieved in this respect. It involved the participation of 463 enterprises and economic organizations, or 96 enterprises more than participated in the 4th national competition in 1979. Collective and individual participation totalled 123, as against 92 in the 4th competition.

The participants in the 5th national competition saved 502,400,000 kwh of electric power, 145,000 tons of coal, 18,500 tons of gasoline, 42,700 tons of diesel fuel, 106,600 tons of fuel oil, more than 82 million cubic meters of natural gas, more than four million GJ heat, and others in 1980. Such savings exceed by more than 18 percent the results achieved by the participants in the 4th national competition.

These results are a direct reflection of the general creative upsurge shown by the labor collectives in all sectors on the eve of the 12th BCP Congress.

The organizational committee awarded the first prize for best results among enterprises engaged in the competition to the Chemical-Pharmaceutical Combine in Sofia. The second prize went to the Tractors Combine in Karlovo, the agglomeration facility of the Kremikovtsi SMK and the Bulgarian Maritime Fleet in Varna, and the third prize was awarded to the Locomotive Engines Depot in Burgas. The successes achieved by these enterprises were the result of the measures implemented to improve the utilization and operation of power systems and the application of strict control and accountability over consumed fuel and energy, broken down by production facilities.

The scale of activities related to the organization and implementation of the movement for energy and fuel conservation rose considerably with the inclusion of the Fatherland Front National Council, whose contribution has been unquestionably substantial. The communal services sector, the biggest consumer after industry, joined the movement for fuel and energy conservation. The movement assumed a more widespread nature after the adoption of the 1978 slogan, "The Thrifty and Effective Utilization of Energy and Fuels is Every Citizen's Duty." With the active involvement of the mass information media, to an ever greater extent this movement is becoming a style and method of work and a daily concern affecting every citizen of our country. The conservation measures carried out by the population in 1980 alone resulted in a saving of more than 202 million kwh of electric power. The highest accomplishments were those of Plovdiv Okrug, 31 million kwh; Sofia City, 20 million; Veliko Turnovo Okrug, 16 million kwh, and others.

Positive changes were noted also in the structure of fuel and energy consumption in the communal-service sector. Against the background of a general increase in the amount of power resources used in this sector, which reflects the ever rising material and spiritual well being of the population, we note a trend of faster growth of consumption of solid fuel and electric power, mainly at night. An inter-departmental program was drafted according to which in the 8th Five-Year Plan 260,000 heat storing stoves and about 300 heat storing electric boilers will be produced. This will make it possible to reduce liquid fuel expenditures by some 300,000 tons.

More than 44,000 storing stoves were produced and delivered to consumers last year. This increased the load of the power system during the night-time minimum by 146.3 megawatts, which improved TETs operations. Far greater results could have been achieved had adequate amounts of timers for double rate electric meters and properly developed power distribution grids been available. This scarcity was the reason for the reduced quality and reliability of electric power supplies and the increased power losses in some settlements.

In order to improve the efficiency of electric power consumption, mainly in terms of equalizing the 24 hour average load of the electric power system, in 1977 the Ministry of Power Supply introduced a controlled electric power consumption system in industrial enterprises. Studies were made as a result of which ceilings were introduced for periods of peak loads of the system. In 1980, with an average planned reduction of 340 megawatts, the reduction did not exceed 216 megawatts.

This fact and the investigations conducted during the year indicated that the enterprises have still not ensured the utilization of all possibilities for the equalization of load schedules.

The range of limited electric power consumers was expanded in 1981. It covers 1150 enterprises with a peak load in excess of 100 kw. In the winter the morning peak will be reduced by 491 megawatts and the evening peak by 463. Control of peak consumption leads to considerable savings on capital investments for the building of peak capacities and to fuel economy from a reduction of the percentage of transitional operational systems of steam generators, reduced energy and capacity losses and improved electric power supply reliability.

Every year the Ministry of Power Supply is increasing the extraction of coal and briquettes for the commodity stock. An additional 211,000 tons for population use were secured in 1980. Centralized heat supplies to industry and private consumers-generated essentially from domestic coal, will be developed in the 8th and 9th Five-year Plans. By the end of 1985 about 19 percent and in 1990 28 percent of the population will be supplied with central heat. In the 8th Five-Year Plan we shall continue to improve the centralized heat supply system with expected savings totaling some 100,000 tons of conventional liquid fuels by the end of the period.

The introduction of summer daylight saving time plays a major role in reducing the consumption of electric power in the communal-service sector and in electric lighting. As active work is shifted to the daylight hours, conditions are created for the better organization of the summer rest period of the working people, in addition to the improved utilization of installed electric production capacity. Last year a reduction of the peak evening load totaling 400 megawatts per average work day was reached and 110 million kwh of electric power were saved.

Successes achieved in 1980 and in the 7th Five-Year Plan in upgrading the energy effectiveness of the national economy have been unquestionably substantial. They are a solid foundation for the solution of the problems facing us in the 8th Five-year Plan. With the active participation of the DKP [State Committee for Planning] the DKNTTP [State Committee for Science and Technical Progress] and all economic ministries and departments, the Ministry of Power Supply formulated in 1980 a program for upgrading the effectiveness of the utilization of power resources and the reduction of production power intensiveness in the 8th Five-Year Plan and through 1990. This program covers all economic sectors and outlines the basic directions along which we must focus our efforts. More specifically, this involves the reduced use of energy in the chemical and metallurgical industries, cement production, construction ceramics, electrolytic copper production, the production of a number of textile goods and others. As a result of these activities, savings of about 12 million tons of conventional fuel are expected in the 8th Five-Year Plan.

Major assignments are given to the economic organizations in industry, the communal-consumer service sector and the Industrial Energetics and New Energy Sources Scientific-Production Combines for the implementation of the program. Work will be continued in the power system to reduce specific power outlays through reconstruction and modernization. The biggest efforts will be made at the Maritsa-Iztok 2 TETs. Further efforts will be made to reduce electric power outlays for power plant requirements and power transportation losses. Good results are expected from the mastering of new energy sources and the utilization of secondary energy resources in all economic sectors.

The draft theses of the 12th BCP Congress pay particular attention to the increasingly fuller utilization of the energy-raw material resources, to lowering the power intensiveness of output and to rationalizing the power consumption structure.

Power and fuel are national resources which must be used sensibly and thriftily under the conditions of our developed socialist society.

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USE OF WATER RESOURCES FOR POWER GENERATION ANALYZED

Sofia ENERGETIKA in Bulgarian Mar 81 pp 12-17

[Article by Candidate of Technical Sciences Engineer Yordan Mechkarski, Energoproekt NIPPIES [Scientific Research Planning and Design Institute for Power Systems]:
"Water Resources in the Strategy of Maximum Utilization of Domestic Resources"]

[Text] Our country has limited water resources. Precipitation on the territory and the river flow are highly uneven both in terms of area and of annual and long term averages. Variations in precipitation in the different areas ranges from 450 to 1250 mm. The average annual precipitation in the country is 670 mm. Usually, from five to 25 percent of the annual amount of all precipitation is in the summer, while about 70 percent is during the high water season (in 2-3 months). All in all, about 74 billion cubic meters of water falls on the territory in a year of average moisture. The average annual flow of the domestic rivers, excluding the Danube, is 18.6 billion cubic meters, dropping to 8.5 billion cubic meters in drought years. According to preliminary estimates and data, it would be economically justified to use 14 billion cubic meters of water to meet comprehensive water requirements of the country.

The physical-geographic and weather characteristics of the country also contribute to the uneven distribution of water resources among the different areas. Thus, about 53 percent of the entire flow, excluding the Danube river, is in the Rila-Rhodopi Mountain area, which accounts for about 31 percent of the country's entire territory. Because of the high-mountain nature of the area, it accounts for 90 percent of the country's overall hydraulic power potential.

These natural values of our water resources determine our approach to their comprehensive and effective utilization.

The high annual and long term unevenness of the flow and the absence of big rivers required the elaboration of specific systems for the energy and comprehensive utilization of hydraulic power sources. Most of the plans called for the building of big water reservoirs in the upper and middle reaches of the rivers and a system of collecting and transporting canals for the transfer of waters from one river basin to another.

Conventional systems of dams and power plants with circumventing falls, for controlling the flow and utilizing the entire geodetic pressure along the river channel have been built along the big rivers such as the Arda, Iskur, and Vucha.

The beginning of Bulgarian hydroelectric power construction was in 1878. In more than sixty years the bourgeois system built 47 small hydraulic power plants generating an overall capacity of 48 megawatts and with an annual electric power production of 168 million kwh.

After the victory of the socialist revolution of 9 September 1944 an intensive development of the entire economy was undertaken. This included the use of water resources to meet comprehensive requirements and the fast building of large scale hydraulic power projects and power systems. Considerable successes were achieved by our country in 36 years of hydroengineering construction. More than 400 high dams with about 760 hydraulic power plants of different capacities and hundreds of km of pressurized and non-pressurized canals were designed and built.

Between 1944 and 1954, because of its low power and energy requirements, Bulgaria built about 30 small hydroelectric power plants in various parts of the country.

During the next stage the development of our hydraulic power industry took a different way. The intensive development of local power sources required the accelerated solution of many problems related to the optimum utilization of waters on a national scale. A unified water resources plan was drafted. Systems and designs were formulated for the comprehensive utilization of the waters of the main rivers and river basins, based on the needs of the national economy.

Various studies of the water system, the nature and durability of the flow, and the economic profitability of the building of dams, water cappings, and collecting canals were conducted. They were extensive in scope and variety. The problem of the utilization of waters for electric power production based on the building of power systems was planned and developed. New types of water tapping systems and water extraction installations for the surface, mixed, or bottom extraction of water from the dams, based on the demands of the consumers regarding water temperatures, were built.

The fast building of dams for comprehensive purposes, such as the Aleksandur Stamboliyski, the Georgi Dimitrov, Topolnitsa and others was undertaken, along with the respective hydroelectric power plants. During the same period the development of the Arda power system was undertaken. This included the first big Studen Kladenets hydraulic power center, with a sixty meter high concrete dam and a 68 megawatt power plant.

The large hydroengineering installations along the Iskur power system were built. They were designed and built to meet the multiple purposes of electrical power production, Sofia water supply and irrigation of the Sofia plain. The system includes three dams which control the flow and two hydroelectric power plants with combined 50 megawatts capacity.

The main hydraulic power project of the 3rd Five-year Plan--the Batak power system--was completed and began regular operation in 1958. This complex includes several dams of a different type, a large number of bypasses and three hydroelectric power plants with a combined generating capacity of 225 megawatts and an annual output of 1.24 billion kwh of electricity. This was the first hydraulic power system designed and built according to contemporary highly efficient hydroengineering concepts. For almost 25 years successful use has been made of its high pressure tunnel canals and underground pipelines of large diameters, great lengths and high pressure reaching as much as 60 atmospheres.

Two large underground power plants were built despite complex geological conditions as well as one surface plant. In no more than a few years 81 km of tunnels and 72 km of canals were dug, compared with the 43 km of tunnels for various purposes dug during the entire bourgeoisie period. For the first time in our practice the system of cascade building of power plants was developed and improved along the Batak hydraulic power system, along with a system of collecting canals through which waters are successfully transferred from one basin to another. Our designers and hydraulic power builders gained great experience and a leading nucleus of highly specialized hydraulic engineers was developed.

Between 1960 and 1970 the Kurdzhali and Ivaylovgrad hydraulic power centers were built and commissioned along the Arda River on the basis of new and original technical solutions.

The Kurdzhali dam is arched. It is 100 meters high and was built under complex geological conditions. Here new construction technologies were successfully used and the quality of construction is high. The complex geological structure of the foundations and the banks called for the designing and building to apply original solutions for the strengthening and blocking of talc and techtonic formations along the left bank. A special plan was drafted and various controlling and measuring instruments were installed for the observation and control of the dam. The operation of the equipment and the observations indicate that the butressing measures are effective and reliable.

The Ivaylovgrad hydraulic power junction is a massive concrete gravitation wall more than 70 meters high with a power plant generating 100 megawatts.

A number of problems related to diverting the high waters with the necessary safety both during the construction and the operation were successfully resolved in the designing and building of the projects along the Arda River. A new technology and organization of the construction of concrete walls, requiring a reduced amount of cement and plastifiers were developed and applied.

During the 5th and 6th Five-Year Plans the intensive construction of our biggest hydraulic power systems--Belmeken-Sestrimo and Dospat-Vucha--was undertaken.

The technical solution of the problems of the Belmeken-Sestrimo power system was of a one-of-a-kind nature. It makes it possible to tap and use for multiple needs the waters of the upper reaches of the Maritsa, Struma and Mesta Rivers and part of their tributaries. The power system includes three high pressure hydraulic power plants: Belmeken, Sestrimo and Momina Klisura, generating a total power of 735

megawatts, with an annual electric power output of 1.2 billion kwh and with sufficient water for the irrigation of 600,000 decares of fertile area in the Thracian lowlands. Using a system of collection canals and tunnels located on two levels, with an overall length of 246 km, including 67 tunnels and 189 canals and sag pipes, and with the help of 257 water tapping systems, 358 million cubic meters of water may be tapped in a year with average moisture.

The main installation along the power system is the Belmekin dam. It is made of crushed rock with a clay core. It is 105 meters high and slant ratio of 1:1.6 on the non-water and 1:1.85 on the water side. The base is granite rock. Under it are an injection gallery and an anti-filtration screen. The wall was constructed under difficult weather conditions. Heavy duty comprehensive mechanization facilities were used and the construction was organized on a modern basis.

The Dospat-Vucha hydroelectric power system is being built in the Rodopi Mountains. It consists of eight power plants generating a total of 840 megawatts with an annual output of 1.13 billion kwh of electric power. This comprehensive power system will be able to irrigate 400,000 decares of fertile land in the Thracian lowlands and ensure the water supply of settlements in southern Bulgaria. The system includes six dams 40 to 140 meters high. Three of them are already in operation and one is under construction. The Dospat-Teshel hydraulic power junction is the highest step in the system. It has a poured rock wall with a clay core and it is 60 meters high. A pressure tunnel canal begins at the dam. It is 16.2 km wide and 3.10 meters in diameter. The Teshel power plant is located in the valley of the Buinovska River. It can generate sixty megawatts. The hydraulic power junction was built under complex geological conditions in an earthquake-prone area.

The Antonivanovtsi hydraulic power junction is unique in terms of dimensions and solutions. Its dam is 145 meters high. It is of the concrete-gravitation type with widened surfaces; 1.14 million cubic meters of concrete were used for its construction. The Antonivanovtsi hydroelectric and pumping-storage hydroelectric plant, generating a power of 160 megawatts, is located below the wall. The power plant is of the overflow type. The hydraulic power junction was built under complex geological conditions with a large number of tectonic breaks which required injection treatment before the wall's foundations were laid. The wall was built with the help of two 15-cable cranes and the use of modern mechanization facilities for the processing of the concrete and the use of the NKS Bulgarian made plasticizer which lowered the amount of cement needed for one cubic meter of concrete.

The Krichim hydraulic power junction is the last step in the Dospat-Vucha power system. It consists of a concrete gravitation wall 87 meters high and two conduit power plants generating a total of 87 megawatts.

Under the people's system many other power systems and plants were built, such as the Petrokham, Sandanska Bistritsa, and others. The Pirinska Bistritsa power system is currently under construction.

The high development pace of our power industry brought about qualitative changes in the structure of power generating capacities. Together with the building of thermoelectric and hydroelectric plants, in the 6th Five-Year Plan, with USSR help,

we built the first nuclear power plant in Bulgaria and in the Balkans, the Kozloduy AETs [Atomic Electric Power Plant], whose initial capacity was 880 megawatts, now raised to 1320 megawatts. In the future, the building of nuclear power plants will continue at a faster pace.

The building of big thermoelectric and nuclear power plants calls for the determination of their optimum combination in the balance of generating capacities and the energy produced by the system. This combination required the building of peak generating capacities used also as buffer consumers for the compensation of minimum loads, along with the building of thermoelectric and nuclear power plants with a high technical minimum.

Studies have indicated that such requirements are most satisfactorily met by PAVETs [Pumping-Storage Hydroelectric Plants]. So far we have built three PAVETs with a total generating capacity of 120 megawatts. In the past few years Emergoproekt has been intensively working on problems and designs and undertaken the building of Chaira PAVETs, with an 860 megawatt capacity. The power plant uses as its upper leveler the Belmeken dam. The Chaira dam will be built as its lower leveler. The design of this one of a kind project includes the building of two parallel tunnels, two water towers, two underground pipelines, an underground power plant, two lower ditches and all the necessary equipment for them. The power plant will have four reversible turbines of 215 megawatts each, manufactured by the Toshiba company in Japan. The Chaira dam will be made of concrete. It will be 87 meters high and rest on a rock foundation.

For a number of years studies have been conducted jointly with Romanian specialists on the study and designing of hydraulic power centers along the Danube River. The Nikopol-Turnu Magurele power system will consist of two hydroelectric power plants (one on each bank), each with ten horizontal Bulb-type turbines developing 37 megawatts each, an overflow concrete wall, a blocking earth dike, two sluice gates, navigation systems and blocking dikes in the water reservoir.

As a result of the adamant efforts of the designers and hydraulic power builders, today our power industry is managing 28 big dams containing a total of 3,870,000,000 cubic meters of water. The hydraulic power projects built by the power industry supply water for the irrigation of more than 4.5 million decares of fertile land and for the water supply of many big projects and settlements; 84 percent of the hydroelectric power capacities are built along power lines for multiple-purpose use. So far the hydroelectric power plants generate a total of 1993 megawatts with an annual production of 4.47 billion kilowatt hours of electric power in an averagely moist year. In 1980 this accounted for about 13 percent of the country's annual output which totaled 34.8 billion kwh.

The Emergoproekt NIPPIES [Scientific Research Planning and Design Institute for Power Systems] has been entirely in charge of the study and designing of hydraulic power projects. It has a big collective of well trained specialists--scientific workers, geologists and designers.

The solution of problems related to hydraulic power projects is achieved with the great help of Soviet specialists. In the initial period they gave us extensive help in the development of normative documents and the specific solution of problems. Together with the Gidroyekt specialists in Moscow and the Leningrad VNIIG (All-Union Scientific Research Institute of Hydrology), the problems of the Al. Stamboliyski, Batak hydraulic power system, Antonivanovski hydraulic power junction, and others, were resolved. The Soviet specialists were particularly helpful in resolving the problems of the Kurdzhali dam.

In cases of technically heterogeneous geological strata particular attention is paid to the foundations of concrete dams in the course of their designing and construction. A method has been developed for the statistical sizing of dams with such foundations based on the method of extreme elements and use of computers. Progressive methods have been developed and applied to compute the stability of the slopes of dam walls and reservoirs. Progressive methods are applied for the cooling of the concrete, and so on. Currently the institute is working on the building of the Chakra PAVETs dam using long blocks. This will reduce the cost of construction and the time element and will increase the safety of the installations. New methods for the seismic study of dams and other hydroengineering systems are being developed jointly with other scientific institutes and Soviet design organizations.

Modern methods for determining the size of filters and the clay cores, for computing deformations, filtration and overflow pressure in designing and building dams made of local materials. New technical solutions have been found and methods developed for the organization and technology of the building of such dams which do not require specially selected materials or the use of heavy mechanization facilities.

Considerable qualitative changes have been made in tunnel construction in recent years. Geological studies of pressure tunnels and ground pipes make extensive use of seismic and ultrasound studies. Hydraulic cushions and radial presses are used in the study of the geomechanical rock indicators. A method for group injection and prestressing of the rock and the lining of pressure tunnels was developed with a view to reducing the thickness of the concrete and reinforced concrete, and to improve installation safety.

The problems of digging tunnels in weaker soils with thin covers and in the existence of swelling rocks were successfully resolved in the construction of the tunnels for the Varna TETs (Thermoelectric Power Plant). New solutions and technologies were applied involving the use of thin elastic lining of sprayed concrete combined with anchors and frames used as temporary linings were successfully used in the construction of the Lopovo Dere tunnel of the Maritsa-1200 canal in the Belmeken-Sestrino power system. Recently the linings of the tunnels along the Belmeken-Sestrino power system were reassessed, as a result of which some of them, in the solid rock part, were removed.

Studies will be undertaken in the area of canal building leading to the use of prefabricated 2, 3 and 4 meter long pipes. Deep anchors used in soft and rocky soils are being developed and experimentally tested as a means for labor safety and for improving the safety and effectiveness of the installations. The plastic films and other special hydroinsulation materials are extensively used in the drawings of derivation canals, replacing scarce copper foil.

Several new methods and new mechanization facilities were used in the case of industrial water supply system for the Kozlovsky AETs in the building of hydro-engineering systems. The draining of the shore pumping station was accomplished with the help of an uninterrupted concrete screen while the concrete lining of the lead canals, delivering 160 cubic meters per second, required the use of special complex mechanization facilities.

Great successes were achieved by the Energoproekt hydroengineers in designing and building high pressure ground pipes for hydroelectric power plants. On the basis of terrain and mock up tests conducted along the Belozersk TETs pipe, the necessary data were acquired for the combined effectiveness of metal lining, concrete and rock. This enabled them to design a type of lining which makes maximum use of the strength of the rock. In the designs which were drafted and subsequently carried out the stresses applied on the steel, computed without taking into consideration the resistance of the rock, exceed by 40 percent the sagging of the material. The rock absorbs 65 to 67 percent of the entire internal pressure.

In recent years the hydraulic power collective at the Energoproekt NIPPIES has been designing big industrial dumps. Because of the specific problems they present, such dumps require very attentive work on the part of the designers and the operational personnel.

The Medet dump was built on the basis of the institute's design. Its wall is similar to those of the tail dams and is built of tailings. The Luki dump was built according to our designs. It is a poured rock wall with a clay core and a very economical daringly designed cross section (1:1.5 gradient). This provided a successful solution to problems of tacking the karst under the wall and along the banks by injecting into it cement-tailing material.

The natural characteristics of our country and the lack of adequate water resources, as well as the steadily rising need for water raise ever more urgently problems of the optimum combination of the interests of the different water users and consumers, which clash frequently. Contradictions between the power industry and irrigation are particularly severe in terms of the choice of systems for the utilization of tapped and controlled waters from the power systems, bearing in mind the lack of lower equalizers for irrigational requirements. This problem is becoming exceptionally topical and fast temporary and permanent measures must be adopted to resolve it.

We must undertake the rapid study, designing and construction of lower equalizers below the developed power systems, to redirect the waters from power generating to irrigation and to upgrade the effectiveness of hydraulic plants. This will also increase the efficiency of the waters tapped for irrigation.

Another major problem in the development of hydraulic power resources is the optimal combination and efficient utilization of the waters in accordance with the requirements of the maximum preservation and restoration of the environment. The purpose of the technical solutions must be to ensure minimum damages to ecological conditions in the areas where waters are tapped, transported, regulated and used. The new technical solutions for hydraulic power plants and power systems must take into consideration the requirement of causing minimal damage to the environment and the landscape during the building of hydroengineering systems. Funds must be set aside for the restoration of the environment and the recultivation of the affected land.

One of the primary tasks in the program for the development of the national energy complex is the maximum utilization of domestic resources. This includes water as well.

According to the latest Energoproekt developments, in the near future we could build hydroelectric power generation capacities for another 1920 megawatts with a total production of 7.6 billion kwh of electric power annually.

All countries, including those rich in energy sources, are engaged in extensive studies and developments on the most efficient and complete utilization of available hydraulic power potential. Particular attention is paid to the use of the so-called microhydroelectric power potential which calls for the building of a large number of small hydroelectric power plants generating from 100 to 1000 kw, meeting local requirements.

It would be suitable for us as well to consider profoundly and in detail the entire available hydroenergetic potential and to seek ways and means for its most effective and rational utilization. This will require the accelerated building of projects and installations which will be added to the already developed hydraulic power system. On the other hand, we must study the problems of building electric power plants at all irrigation and water supply dams. At the same time, we must optimize the gradients of treatment stations with a view to obtaining maximum comprehensive results.

We should also consider the possibility of increasing the amount of water tapped in existing reservoirs, expanding power plants along already developed power systems and, particularly, the reconstruction and modernization of many small hydroelectric power plants. Last but not least is the question of the further accelerated building of a number of effective hydraulic power projects along the Arda, Vucha and Mesta Rivers.

The application of technical progress will be the decisive direction which will be followed in the development of the hydraulic power industry's 8th Five-year Plan. The efforts must be focused on the search for modern technical solutions and technologies, the creation of better methods for resolving problems with the maximum use of computers, and the successful and extensive application of synthetic material in hydraulic engineering.

Special concern and attention must be paid in resolving problems of laying the foundations of hydroengineering systems on weak soils and the seismic protection of dams, power systems and hydroelectric plants. Special concern and attention must be paid to reducing the time needed for the building of projects through the extensive use of modern organizational methods and the comprehensive mechanization of construction work. The successful solution of these problems will require the joint efforts of all specialists in the field of water resources and the extensive use and application of foreign experience, that of the Soviet Union above all.

IMPROVED USE OF CRUDE OIL, EQUIPMENT BY CHEMICAL INDUSTRY URGED

Sofia KHIMIYA I INDUSTRIYA in Bulgarian No 2, 1981 pp 53, 65

[Editorial: "The 8th Five-Year Plan is a Five-Year Plan of Technical Progress"]

[Text] The chemical industry five-year plan calls for the solution of major problems related to the building and commissioning of industrial capacities large in terms of our scale. The new capacities under construction are based on the highest world technological standards. This is one of the main prerequisites for achieving high productivity, high quality and other technical and economic indicators in the 8th Five-Year Plan. These major problems will be resolved with the forces and possibilities of specialists, workers and scientific collectives of the ministry. The technical assistance provided by the Soviet Union and the other socialist countries, based on integration, will play a decisive role in the development of the new capacities. The same problems face central management and membership of the Chemistry and Chemical Industry Union, and all societies and members of this union in plants and shops.

The main problems of the chemical industry, which are of the greatest importance to the national economy, are reflected in the programs formulated for the most effective utilization of chemical resources in the 8th Five-Year Plan.

The petrochemical industry is the basic and determining sector in the chemical complex. It is the foundation of organic synthesis and of a number of important Bulgarian economic sectors using petroleum products. We know that this raw material is not always being rationally used. In order to remedy this, a high percentage of the petroleum and natural gas will be subjected to comprehensive and extensive treatment in order to secure raw materials for the chemical industry and other sectors. Modern technology makes possible the even more efficient use of petroleum and natural gas. It has been calculated that their use in the production of polymers or other products, rather than fuel, makes them ten times more effective. Therefore, new extensive processing capacities will be built and mastered in the 8th Five-Year Plan. Thus, for example, instead of using petroleum as boiler fuel, it will be processed and its use as such will decline from 40 percent in 1980 to 31 percent in 1985 and 21 percent in 1990. This will result in the corresponding increase in the amount of engine fuels and other more valuable products such as plastics which, from 100 conventional units in 1975 will reach 406 in 1985 and 610 in 1990. Synthetic rubber conventional units will reach 211 in 1985 and 634 in 1990; the corresponding increase in synthetic fibers will be 221 in 1985 and 349 in 1990.

Natural gas will be extensively processed into ammonia and methanol rather than being used as industrial fuel.

The second direction which will be followed by the complex is the production and processing of plastic materials. Plastics are chemical products which offer tremendous opportunities for effective utilization in the national economy. In many areas they act as perfect substitutes for metal, timber and other scarce materials. They are particularly extensively used in flooring, pipes, shaped parts, carpets, sound and heat insulation materials, irrigation systems in agriculture, greenhouse farming, packaging, and others. The five-year plan stipulates the building of capacities for increasing the production and processing of plastic materials.

A number of measures have been formulated and more could be developed to ensure the rational utilization of chemicals in the five-year plan. This applies to measures on the application of advanced technologies and rubber and plastic goods which will reduce the weight of items produced by the machine-building, construction, transportation and other industries. The implementation of merely a few of the basic solutions will result in additional output worth 226 million leva, compared with the 1980 level, for the five-year period. The use of a more suitable polymer such as propylene instead of some traditional plastic materials used so far alone would yield additional output worth 79.9 million leva in the five-year period. One of the major and topical problems of our time, particularly affecting the chemical industry, is finding a use for industrial waste and secondary raw materials.

New directions have been earmarked for the utilization of fluorine from the waste gases of triple super phosphate, the use in construction of phosphogypsum in Dimitrovgrad and of fibrous polyamide waste from the Polyamide Fiber Plant. The expected savings from such projects in the five-year plan are estimated at 29 million leva.

In the 1981-1985 period industrial measures will have to be developed for the maximum reduction and total utilization of industrial waste. Worldwide practice is familiar with methods for the most efficient recycling of nonvulcanized and semi-vulcanized rubber mixes made of plastic technological waste, together with the utilization of pyrite waste in Devnya and Dimitrovgrad and of polyamide fibers of the Economic Chemical Combine in Vidin, of phosphogypsum in the manufacturing of sulfuric acid, and so on. On the basis of these examples, the Ministry of Chemical Industry has issued the assignments to scientific institutes and plants and to the members of our union. Preliminary estimates have indicated that the effective utilization of chemical raw materials, including waste products, could save about 509 million leva in the 8th Five-Year Plan.

The international sectors such as machine building, construction, agriculture and others use about 70 percent of the chemical industry output. The national economy could save additionally 4.9 million leva from the efficient and rational utilization of petroleum products, plant protection chemicals, plastics, rubber goods, fertilizers, etc.

The creation of technologies and equipment for wasteless industrial processes is one of the most topical directions of technical progress on a global scale. This lowers production costs, protects the environment from pollution and does not require the search for uses of waste products, which demand a great deal of labor and energy. The members of the union must join in the development of creative and rational solutions. Each individual combine, shop, production line or sector could be studied and, on the basis of worldwide achievements, tasks could be formulated for the adoption of wasteless technological systems over a shorter or longer period of time. The Alliance for Chemistry and the chemical industry could undertake, together with scientific, application and design organizations, the formulation of general systems and plans for the 8th Five-Year Plan for each individual combine and shop and, wherever possible, on the basis of worldwide achievements, to reorganize the production process in order to operate without or with minimal waste. This particularly applies to technologies related to the manufacturing of synthetic fibers, the plastics and rubber industries, and other chemical sectors.

Some combines and plants operate at below capacity levels. This particularly applies to heavy equipment installed in many polymer industry plants. Imports of new equipment could be avoided by operating at full capacity. This is a major unused reserve which could provide the national economy with additional goods and semi-finished products. In this area the union membership should assume the initiative and, on the basis of a critical study, determine everything which could be additionally supplied to the economy but which has not so far, for one reason or another.

Traditionally, our plants have been properly ensured with a power supply, and a plant short of electric or thermal power has been an isolated case. The question arises now of the general use of energy sources. We must say that many chemical plants do not use them particularly efficiently. A large number of effective measures were earmarked in the chemical industry for energy and fuel conservation, and substantial positive results have been achieved. However, there still exist undiscovered or unused areas of energy waste in various production processes. The idling of many production lines, installations and machines because of breakdowns or underutilization is a waste of energy sources. Here again the union and its members have a tremendous possibility to engage in creative work together with other organizations or by themselves.

Many important problems await their solution in the chemical industry, based on the main directions of the draft 8th Five-Year Plan. This includes production automation and mechanization, scientific organization of labor, use of micro-processor equipment for the automation of technological processes, and others.

The forthcoming 12th Party Congress will outline the new ways for the building of socialism in our country in the 8th Five-Year Plan--a five-year plan of technical progress--while workers, specialists, scientific collectives and members of the Chemistry and Chemical Industry Union will be those who will implement the great party program for the prosperity of our homeland.

MAJOR INDUSTRIAL, CONSTRUCTION PROJECTS DURING COMING FIVE-YEAR PLAN

Sofia POLITICHESKA AGITATSIYA in Bulgarian No 7, 1981 pp 9, 15

[Editorial: "A New Approach to the Major Projects of the 8th Five-Year Plan"]

[Text] The development of all economic branches and the improvement of living conditions are closely linked to the further expansion of the scale and enhancement of the technical standard of capital construction. This sector is directly related to scientific and technical progress. All directions and achievements of the scientific and technical revolution are refracted through the plans and the timely and high quality building of new and updating and expansion of existing production capacities. Its criteria will continue to be the basis for the intensification of all activities.

The 7th Five-Year Plan was completed by the construction industry with considerable achievements in carrying out the assignments set by the 11th BCP Congress.

Major production capacities were completed, such as the new plant for chlorine, vinyl chloride and polyvinyl chloride in Devnya, the first expansion of the USSR-Bulgaria gas pipeline, production facilities for benzine, acetaldehyde, normal paraffins and ethylene at the Petrochemical Combine in Burgas, the combine for the production of polyester fabric in Yambol and the combine for its processing in Dimitrovgrad, new casting capacities in Ikhtiman and Vratsa, additional energy generating capacities at the Varna and Maritsa-Iztok thermoelectric power plants and the Kozloduy nuclear electric power plant, new production facilities at the Kremikovtsi Metallurgical Combine and the Madara Trucks Manufacturing Combine in Shumen, new house building combines, and technological production lines for cement and effective construction materials.

Capital construction will be characterized by some structural features in the 1981-1985 period. This applies, first of all, to the fact that in the plan it is considered on a long term basis, within the framework of two-year planning periods. Another one of its aspects is the quality which distinguishes the stability of our socialist economy: the increase in the volume of capital investments year after year. Capital investments will total 6.8 billion leva in 1980; they will rise to 7.05 billion in 1981 and reach 7.45 billion in 1982. The third characteristic aspect is that more than one half of all investments for material output will be channeled essentially into industry. Particular attention has been paid to target production capacities in the chemical, power, machine building, metallurgical and

other industries and to industrial projects manufacturing goods which increase the country's export possibilities. This applies to projects which influence most directly the growth of the national income.

The intensive development of the sectors with the help of such investments will be achieved through the introduction of essentially new technologies and new equipment, mechanization of auxiliary processes and installation of automated control facilities for individual processes or entire production systems. About 65 percent of the funds will be used for reconstruction and modernization. Another structural characteristic is a two percent increase of the share of machines and equipment in the overall volume of capital investments.

The new five-year plan will be a period of accelerated technical progress, production intellectualization, reconstruction, modernization and intensification of existing capacities.

The significant concentration of capital investments on a smaller number of projects will lead to a drastic upsurge in their effectiveness.

In accordance with the party's decisions, virtually no new industrial projects will be undertaken in 1981 and 1982. This will guarantee the rhythmical completion of target projects and will reduce the percentage of unfinished construction.

Economic tasks increase with each new five-year plan. To a considerable extent they are implemented through the building of major industrial and energy projects. In the 8th Five-Year Plan as well a considerable percentage of capital investments will be channeled into material production in laying the foundations of the power industry, machine building, the chemical industry, metallurgy and agriculture. Furthermore, greater investments will go into the priority development of the production of consumer goods. About 150 to 200 enterprises producing consumer goods will be reconstructed and modernized.

The construction of major energy projects will be continued at an unabated pace. Our country is the first in the Balkan peninsula and one of the few countries in the world to convert to the large scale use of nuclear power for economic purposes. A fourth energy unit generating 440 megawatts will be added to the three installed generators of the nuclear power plant near Kozloduy. This will raise the plant's generating capacity to a total of 1760 megawatts. It will become the biggest energy center in the country. The third and fourth energy units use a new type reactor with advanced technological processes and proved safety devices. In the power industry the 8th Five-Year Plan will end with the building of the first 1000 megawatt nuclear reactor. This complex construction will be combined with the building of the shielding reactor systems. The blueprint for the organization and execution of this construction is being drafted by Soviet specialists. The Soviet Union will also supply the construction and installation equipment.

During the five-year plan the Maritsa-Iztok 3 TETs, with an 840 megawatt generating capacity (a total of four blocks, 210 megawatts each) will be completed. The building of the modern "Maritsa-Iztok" power complex began in the area of Mednikarovo village, Stara Zagora Okrug in August 1974. A characteristic feature of the structure of

capital investments is that no more than one quarter of them are channeled into construction and installation projects. By the end of 1980 more than 1.2 billion leva's worth of capital investments have been spent on the development of the Maritsa-Iztok energy complex. Essentially, this complex is the biggest Bulgarian electric power plant operating on local coal. Bulgaria is one of the few countries in the world to produce electric power from low-grade fuel--low-caloric lignite, using a combustion system which does not require preliminary drying. In accordance with a design developed by the Energoproekt Research and Design Institute for Energy Construction, a new system is being developed: the boiler units are located crosswise from the basic installation. This is a rarity not only in our country but throughout the world. The use of new solutions in the construction and installation of the project, such as a single foundation for all energy units, consolidated installation of the roofing structure, boilers and pipelines, the use of a fire protection concrete screen for boilers, the construction of a 325-meter tall stack, use of cellulose electrodes for the welding of circulation pipes, and so on, provide considerable economic savings and enable us to shorten the plant's construction time compared with the planned figures. The fourth power bloc will be completed before the end of 1981. In the 8th Five-Year Plan the construction of the complex will continue with the building of two 420 megawatt power blocks at the Maritsa-Iztok 2 TETs. Here the design of the Maritsa-Iztok 3 TETs will be used. This will make the use of the new developments possible. Coal mines will be opened along with the building of the electric power plant.

The complex construction of tunnels and of the Belmeken-Sestrimo power system, to which new pumping-storage installations will be added, will be continued. The Ruse, Burgas and Plovdiv thermoelectric power plants and other thermal energy projects will be equipped with new boiler units.

The capital construction plan creates conditions for the development of industrial sectors at a faster pace yet once again. Particularly great attention is being paid to machine building. The installation of substantial production capacities at the Heavy Machine Building Combine near Radomir, the Heavy Machine Building Combine near Ruse, the Chemical Machine Building Plant in Khaskovo, the Steel Casting Plant in Rakovski, Plovdiv Okrug, the Madara Trucks Combine in Shumen, and many others, will contribute to the growth of machine building output by more than ten percent annually. These enterprises will ensure the production of one of a kind systems and equipment for the power, ore mining, coal, chemical, food, metallurgical and construction industries. Castings with improved physical and chemical qualities will be produced and metal heat processing will be broadened. Possibilities are created for the bigger production of more durable and highly productive instruments made of hard alloys and of extra hard and metal-ceramic materials.

In the five-year plan the chemical industry will expand as well. One of its major features is the petrochemical combine near Burgas, where a number of petrochemical production capacities will be completed, such as facilities for the production of polypropylene, ethylene glycol, and so on. The facilities of the chemical-pharmaceutical and microbiological industries will be expanded. The construction of the K. Rusinov Rubber Goods Economic Combine in Pazardzhik will continue and the Economic Chemical Combine in Vidin will be reconstructed.

The technical and economic report on the Nitrogen Fertilizer Production project of the Economic Chemical Combine in Dimitrovgrad, approved by the Council of Ministers Bureau, marked the start of the reconstruction and modernization of one of the oldest chemical plants in the country. Capacities for the production of 500,000 tons of polyethylene oxide and for 30,000 tons of formalin, and the expansion of capacities for the production of sulfuric acid must be completed by the end of 1981. In 1982 technological facilities for the production of 160,000 tons of triple super phosphate and a treatment station, and in 1984 for 760,000 tons of nitrogen fertilizer, must be completed.

The reconstruction of facilities for the production of ammonia and carbamide at the Economic Chemical Combine in Vratsa must be completed by the end of 1982. The additional capacities which will be installed in the chemical industry in the 8th Five-year Plan will also ensure the production of effective catalytic agents for the production of styrene and nitrogen fertilizers, the removal of sulfur from natural gas, the development of a bimetallic catalyzer for catalytic cracking, a new type of bicycle and motorcycle tire, and products of low-volume chemicals, and of the chemical-pharmaceutical, cosmetics and microbiological industries.

The reconstruction and modernization of the combine in Kremikovtsi, the V. I. Lenin Combine near Pernik, the G. Danyanov Copper Production Combine--first and second expansion, the Elatsite and Asarel Copper Concentration Combines and the Aluminum Treatment Combine in Shumen will be the main project in the metallurgical industry. The construction of new metallurgical industry projects near Burgas has been undertaken.

The first stage of the new electric steel production complex, with a one million ton annual capacity for steel ingots of the V. I. Lenin Combine, will begin production as early as 1981.

The building of highways and the modernization, doubling and electrification of railroad tracks will be the major projects in the field of transport construction.

In the construction materials industry more funds have been allocated for the construction of a second technological production line at the V. Kolarov State Cement Plant in Temelkovo with a 600,000 ton capacity, and of a seventh technological line at the V. Pik State Cement Plant in Vratsa. A new plant with a 30 million tile capacity is under construction in Straldzha, Yambol Okrug.

The construction of a timber industry combine near Silistra and of a combine for the production of cardboard, corrugated paper and packing paper in Pazardzhik will be continued.

In the period of our socialist development, more than 1,980,000 housing units were built in Bulgaria, or 470,000 housing units more than the entire housing facilities available in the country until 1945. The new housing is incomparably better technically and more comfortable. In 1980 alone, another 70,000 families moved into new homes.

About 400,000 housing units must be completed in the 8th Five-Year Plan; 160,000 new housing units will be completed in the first two years alone.

What other new aspects in the implementation of the housing program are there?

The first is that the building of housing in the 8th Five-Year Plan will be based on long term housing programs not only within okrug frameworks but of individual conurbation systems. The comprehensive construction methods will be used in the construction of projects in vital areas of work, residential housing, services and recreation, with their proper infrastructure.

On the other hand, the housing construction plan will be focused on areas and territories with big construction projects, such as Pernik industrial complex, and the various areas in Burgas, the Sredna Gora area, Maritsa-Iztok, Dimitrovgrad, Khaskovo, Shumen and Kozloduy. Housing construction will be increased in Sofia and in Kurdzhali, Silistra, Ruse and other okrugs, taking the existing housing facilities into consideration.

Along with the increased number of housing to be completed, higher performance standards have been adopted in the 8th Five-Year Plan, which will lead to better planning, architecture and features of housing and related cultural-service construction and technologies, systems and materials to be used, as well as the layout of the immediate surrounding environment. Improvements are contemplated in the technical facilities of residential buildings, flooring and wall lining.

A new solution is the possibility offered to buyers and renters to carry out finishing projects such as flooring, carpeting, installation of furnishings, and others, in accordance with their preferences, either by themselves or by contracting.

The urban development plans have stipulations concerning the height of buildings. The trend is to make residential buildings taller.

Housing construction requires considerable improvements in the effectiveness of all economic sectors and the harmonious development of the entire economy. High-strength steel brands, high quality cement, plastifiers, and wood substitutes will be applied in order to increase the level of industrialization and prefabrication and reduce wet processes in construction and lower outlays of scarce metals, timber and other materials.

A radical solution has been provided to the problem of the conservation of energy: new designs have been provided for facing and dividing walls, floor heights and amount of glass used in mass housing construction; the designs call for a lowering of heat losses along pipes. This will increase heat conservation and will improve the transmission of heat in the buildings.

The production-technical facilities in the construction industry will be improved in order to ensure accelerated housing construction and meet other requirements of the living environment. The country already has at its disposal the basic capacities for large-panel and other industrial construction systems. Such facilities are being reconstructed and expanded in accordance with the new requirements and solutions.

The normative documents approved by the government provide a solution to the problem of maintenance and repairs of existing housing facilities in the 8th Five-Year Plan. The allocation of new housing will be based on the urgency of housing

requirements rather than in proportion to the population. This will speed up the solution of the housing problem in the main working centers above all.

The adopted plan for socioeconomic development and the approved programs will help the accelerated comprehensive housing construction in the 8th Five-Year Plan and contribute to the ever more complete and overall establishment of the socialist way of life.

The construction organizations are focusing their efforts on improving organization and management, comprehensive mechanization and utilization of scientific and technical achievements and frontranking experience in construction. This will be the strategy of intensification in the construction industry in the 8th Five-Year Plan. To a certain extent, the problem of the organization of construction of major projects and sites is different from that of other construction. Their preliminary technological preparations, the course of the implementation of construction and installation projects, which involves the completion of complex construction and installation elements, assemblies, systems, and automation abilities, and the management of the concentrated resources within a single project by several differently specialized construction organizations require high technical and organizational preparations and cadre skills. That is why a new approach has been adopted in the organization of the construction of such projects. They were the subject of comprehensive directives and of working schedules which coordinate the activities of all performers in terms of time and project. Such schedules have been coordinated with balances of required manpower, in terms of specialization and amount of work, and sources for the recruitment of scarce manpower have been indicated.

The use of the achievements of scientific and technical progress and leading experience is one of the main possibilities of timely and high quality construction of major projects. Whereas the purpose of high level technological designs is to seek and find the proper sources for industrialization and for increasing labor productivity, the use of technical innovations in the project itself, in all the elements of the construction and installation processes, ensures high final results: the timely and effective completion of such projects.

The program for the construction of big projects in the 8th Five-Year Plan, added to the course of comprehensive preparations, and organization and management of construction and installation projects, adopted for the 8th Five-Year Plan, will ensure the more complete utilization of multiple-purpose resources and the further equalization of the socioeconomic level of the territorial units in the country.

5003
CSO: 2200

PROGRESS IN AUTOMOTIVE DEVELOPMENT

Sofia RABOTNICHESKO DELO in Bulgarian 23 Apr 81 p 3.

[Article by Borislav Kinkov: "Motor Vehicles of Bulgarian Make--What Are Our Designers Working On?"]

[Text] In transport vehicle making the engine and motor vehicle laboratory in Sofia is the main organization for the country doing scientific research and development work. Last year scores of its new and improved products were put into regular production.

All-Purpose Buses

The Chavdar 5 S bus, production of which was started last year in Botevgrad and Preslav, is a typical example of the creative application of the multipurpose approach. Built into it are many of the assemblies produced in the country for other purposes (primarily for car construction). The bus is 16-passenger and has better than usual roadability. What is especially valuable here is the fact that it has been used as prototype for a whole series of motor vehicles of varying purpose. The Chavdar 5 M, for example, has normal roadability. It will service lines that are not particularly overburdened--interurban transportation, tourist groups etc.

During this five-year plan development of the family of small buses and light trucks, in which interest at home and abroad is growing, will be finished up. Production of the Chavdar 5 SU model will be started. It will carry simultaneously 16 passengers and 500 kg of freight. Its seats are collapsible so that the freight can be increased to 2 tons.

The family of multipurpose vehicles will be built on the same base. The light trucks mentioned above can be converted into snow plows, street-light repair vehicles, earth-moving vehicles etc.

Last year production of Bulgarian trailers and semitrailers was started with Lada documentation. Research is now under way in the laboratory aiming at reducing the net weight of trailers and semitrailers and reducing the power losses in the aerodynamics of designs etc.

Gasoline Replaced by Diesel Fuel

The replacement of gasoline engines with far more economical diesel engines is a goal of first-priority importance for our freight transport. The research and design work of the Lada specialists in this area promises to be crowned with success. The first test ZIL [Automobile Plant imeni I. A. Likhachev] trucks with Bulgarian diesel engines are already moving over the country's roads. Tests must be completed by the end of the year.

6474

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REPORT ON DECLINING SUGAR PRODUCTION

Sofia OTECHESTVEN FRONT in Bulgarian 24 Apr 81 p 2

[Article by Metodi Tanev, observer of domestic political questions for the newspaper OTECHESTVEN FRONT: "Bulgarian Sugar"]

[Text] Our country in the first group of producers of this product--High achievements still needed now--As much beet production as refinery capacity requires--What realistic grounds are there for optimism?

Sugar is in the everyday diet of the Bulgarian citizen and his family. It is an ingredient in many of the products of highly developed national industrial activities--canning, wine-making, confectionery, milk-processing, pharmaceutical. Bulgarian beet production and Bulgarian sugar refining were not born yesterday. The first sugar refineries (in Gorna Oryakhovitsa, Ruse and Plovdiv) had their "birth" in 1913 and 1914.

Sugar beet production and consequently white sugar production have grown in the world during the past 10 years or so. The problem is not only economic, it is also social. Whereas during the period 1961-1965 average per-decare sugar beet yield was 2380 kg, in subsequent years a steady growth trend emerged; in the 1966-1970 period it was 2950 kg, in 1972 3020 kg and in 1978 3203 kg. For a number of countries in the world which are traditional producers and have the natural, material and technical conditions that are required, it is a serious and alarming failure if average yield falls below 4000 kg.

Socialist Bulgaria is in the first group of countries in the world in both the production and per-capita consumption of sugar (41 kg in 1977). Our country is equal in sugar production with Sweden, the GDR, Hungary and other countries. Our per-capita sugar production is less than in the USSR where it is 46.5 kg, than in Czechoslovakia, Poland and the FRG where it is respectively 57.4, 48 and 46.2 kg. The Soviet Union is the largest sugar producer in the world--12,036,000 tons in 1977, followed by Cuba--6,953,000 tons, and the United States--5,523,000 tons (or 25.5 kg of sugar per capita).

The fluctuations in the production of beets and sugar during the past 10-15 years, some setbacks from Bulgarian positions that had been won, and sharp differences in

yields and outputs despite identical or almost identical objective conditions and potentialities in the agroindustrial complexes, on branch farms and in the okrugs make it imperative to solve the problems of sugar production not at some vague time or other, but this year yet. . .

The setback that has occurred in sugar production is due primarily to the role, place and purpose of the subjective factor, i.e., the working man, not manifested in full measure and force in the beet-producing okrugs and rayons or in the processing plants and refineries. The figures and facts also indicate a want of foresight, i.e., in the creation of new production capacity, i.e., in the availability of new productive forces, in the determination of the beet-producing rayons, in the lack of agreement and unity of action all along the "land-final product" chain.

We have a new and modern sugar-producing industry with the exception of the sugar refinery in Gorna Oryakhovitsa. Hundreds of millions of leva and a tremendous amount of living labor were spent on its construction. But where is the desired and necessary efficiency now that the production facilities have the capacity to process significantly more sugar beets than are produced and received, now that the sugar refineries are "starving" for beets for day after day during the harvesting campaign?

The production at Kameno (Burgas Okrug) increased last year from 2000 tons of processed beets per day to 5000. Capacity for another 2000 tons is about to come into production. But the beets produced by the supplier okrugs (Burgas, Yambol and Sliven) fall far short. In addition, the suppliers of the modernized sugar refinery at the Vasil Kolarov Combine in Plovdiv for year after year have been Stara Zagora and--again--Sliven and Yambol okrugs. The refineries at Lom and Dolna Mitropoliya are experiencing a beet "famine," but to a lesser degree.

Raw materials in suitable quantity and of suitable sugar content are needed for the existing capacity. Average annual beet production during the Seventh Five-Year Plan was 100,000 tons more than in the Sixth Five-Year Plan, but less than in the Fifth Five-Year Plan, while average per-decare yield declined gradually during both the Sixth and Seventh Five-Year Plans, falling last year to 2619 kg.

The specialists say that sugar beets are a highly labor-intensive and "delicate" crop. There is no case for a contrary opinion. The setback is, to be sure, the result of a combination of many factors and circumstances of an objective nature as well (lack of modern machinery, insufficient manpower etc.). But causes of a purely subjective nature greatly preponderate. There is no denying paradoxes, either.

Up until five or six years ago our country imported the seeds for this crop. But now it is an exporter. Bulgarian and international strain-testing is categorical: the strains bred at the Prof. Iv. Ivan Sugar-Beet Institute near Shumen are the equal of the best specimens of world breeding. The needs for high-quality, genetically single-germ seeds of high-yield strains and hybrids are now fully met. Nor is there anything that we do not know about the technology or method of raising sugar beets. We have enough of both agronomists and other specialists of our own.

Accuracy necessitates mentioning that some questions of an objective nature are completely solved while others are unsolved or partially solved. Some of the harvesting machinery (combines) is obsolete or physically worn out. But it is also true, for example, that last year our agriculture was better equipped than in any previous year whatever with high-efficiency specialized machinery such as "SST-12" and "Pnevmatika" [Pneumatics] drill planters, "Rau-kombi" and "UEMK-5.4" cultivators, levelers, and with modern "Erio" harvesting lines.

Then why the declines? There is one answer: latent reserves and potentialities are not being utilized everywhere. Three or four years ago despite tighter objective favorable factors the producers of the Gorna Oryakhovitsa industrial-agrarian complex had an average per-decare yield from their cropland of 4210 kg of sugar beets; the Ruse industrial-agrarian complex, 5037 kg; the Shtruklevo agroindustrial complex, 4415 kg; the Nova Zagora agroindustrial complex, 4320 kg etc. In 1979 a brigade in the village of Devetnitsa at the Karbonat agroindustrial complex produced 6361 kg of sugar beets per decare.

Objectively it is quite possible never to have an average per-decare yield of less than 3.5 tons or even less than 4 tons. Last year Varna Okrug had an average yield of 1600 kg per decare; Mikhaylovgrad Okrug, 1620 kg; Sliven Okrug, 3325 kg; Veliko Turnovo Okrug, 3177 kg; Ruse Okrug, 3012 kg. And last year the agroindustrial complex in Slivo Pole (Ruse Okrug) had an average per-decare yield of 4250 kg of beets.

Identical or almost identical conditions, but different results.

Not only specialists, but also all working people in this sphere know the reasons. Either planting was not on time or as it should be, or weed and disease control was slap-dash, as they say, or some other job was not done. Sugar beets require a high standard of agriculture. The observations and inspections made by the Bulgarian Sugar State Economic Trust and by the Sugar-Beet Institute have shown that losses after trimming amount to 300-400 kg per decare and during harvesting to another 500-600 kg. Besides this, losses occur during both loading and unloading of the beets and at the refineries.

The autumn last year was "golden." Climatic conditions were excellent for the storage of sugars and for obtaining high-quality raw materials. The experiment of the Vasil Kolarov Sugar and Sugar Products Combine (beets to be bought according to sugar content) proved more than encouraging.

Nobody now disputes that producing 500 kg from the beets off one decare is a completely realistic and feasible goal. There is an optimistic ring in the assurance of NAPS [National Agroindustrial Union] and the Bulgarian Sugar State Economic Trust that 1981 will be a turning point in beet production and in sugar refining. There is one single way to bring this about: not expansion of the land under cultivation, but intensification, i.e., a sharp increase in yields and a higher degree of sugar content. Conditions for this exist. Sugar beets are raised on fertile land, a considerable portion of which is irrigated.

An average sugar-beet yield of 3300 to 3500 this year! This is not a wish, it is a social mandate for meeting which worthily the objective factors and circumstances are present. What is new so that we can count on a turnaround?

First, there is a sharply elevated sense of duty and responsibility not only within the whole NAPS system and the Bulgarian Sugar State Economic Trust, but also in the agroindustrial complexes. It is time for the scientist, the agronomy specialist, the agricultural mechanical expert, the engineer, and the worker in the refineries, which are capable of processing 700,000-800,000 tons more of sugar beets than they did last year, to show their worth in the role for which they are fitted.

Second is the raising of this crop not only in the 13 okrugs, of which Veliko Turnovo Okrug provides over 300,000 tons of beets, but also in Silistra, Vidin and other okrugs. It is the third year now since Pazardzhik and Plovdiv okrugs carried into practice a "resurrection" of their sugar-beet raising, which in the past was highly "esteemed" there. In these okrugs with irrigated agriculture it is something quite realistic and feasible to get 4-5-6 tons per decare.

Third, there is the decisively improved material and technical base. Eight hundred specialized drills are quite enough for planting at a modern level. The Bulgarian Sugar State Economic Trust's integration relations of a new character with the agroindustrial complexes are being expanded.

Actually, when it is a question of Bulgarian sugar, it is a question of the honor, duty and responsibility of both those who produce the beets and those who convert them into sugar.

6474

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FOSSIL FUEL UTILIZATION CAPABILITY TO BE EXPANDED

Leipzig CHEMISCHE TECHNIK in German Vol 33 No 3, Mar 81 pp 111-114

[Plenary address by Dr Hans Koehler, Chamber of Technology; deputy minister for chemical industry; at Second Petrochemical Symposium of Socialist Countries, Leipzig, 28-31 October 1980: "The Prospects of Petroleum Processing, Petrochemistry and Coal Chemistry in the German Democratic Republic"]

[Text] The Second Symposium of the Socialist Countries on Petroleum Processing and Petrochemistry is taking place at a time which is characterized by the aggravation of the raw material and energy source situations. The increasing shortages of petroleum, petroleum products and natural gas on a universal scale--brought about by the rapid rise of energy and raw material requirements of the evolved industrial countries, which in past years and decades have been met by a continuous increase in petroleum processing--and the considerable increase in the price levels of these products have in the period since the beginning of the 1970's led internationally to a change in the evaluation of energy and raw materials supply. This holds true equally for the CEMA countries.

To assure further building of the national economies of these countries, it is therefore necessary to set up new standards for the use of chemical raw materials and energy sources such as petroleum, coal and natural gas. The aim is to use these fossil carbon sources optimally, i.e., to consider as an inseparable unit the use of these raw materials as sources of materials and as sources of energy. Here I see as the preeminent goal a continuous increase in the portion of the fossil carbon sources which is used for the supply of materials. This, however, is equivalent to making incisive modifications in the structure of energy source utilization and presupposes the development of new processes for the more thorough processing of petroleum, for the chemical utilization of coal and for the use of natural gas as a raw material. I believe that particular significance should be given to correct proportioning of the use of fossil carbon sources for energy production, as well as for use as a source of materials.

These considerations should more markedly include making energy available through the further construction of nuclear power plants. Thus, we create the prerequisite that fossil carbon carriers will still be available in the future pre-eminently for utilization as a source of materials.

As you know, the capital expenditures for producing chemical raw materials and fuels from coal are approximately one order of magnitude greater than those

required to make these products from petroleum (at present world market price levels!). For this reason, the first step has to be the complete processing of available petroleum to chemical raw materials and fuels. The increased chemical utilization of coal is a task which is immediately subsequent to this. The work of developing new processes for utilization of coal to make chemicals is to be accelerated so that they will be available on time in accordance with essential requirements. Today, we must already be thinking about using mineral carbon sources such as calcium and magnesium carbonate and other carbonates, as well as the carbon dioxide of the air, so that we will also be able to tackle the utilization of this raw material potential in the long term.

The following concepts result from these fundamental reflections for the chemical industry of the GDR:

1. Extension of the more thorough processing of petroleum as well as stepwise increase of the degree of utilization of petroleum as a source of materials.
2. Preeminent use of the natural gas at our disposal as a source of materials.
3. Stabilization of the present coal chemical plants, including carbide production, as well as further extension of coal refining.

At present the GDR processes 19 million metric tons of petroleum a year. Of this, 15 percent was used this year as a source of materials. Our goal is to increase this share to about 20 percent by the end of the next five-year plan period.

To meet the GDR's increasing demand for fuel and petrochemical raw materials with the available petroleum, we are going over to cracking of fuel oil components which are released from power stations. To do this, a program is now under way to replace fuel oil used for energy with brown coal. We are centering our investment activities on these tasks, among others.

Construction of a catalytic cracking installation with a cracking capacity of 1.2 million metric tons a year of fuel oil components at the VEB [State Enterprise] Petrolchemisches Kombinat Schwedt [Schwedt Petrochemical Complex], which will be started up in 1981, is a considerable step toward achieving this concept. Since staged development of uses for the cracking products will occur simultaneously with construction of the cracking installation, the result will be an extension of the GDR's petrochemical raw material base, as well as an increase in motor fuel availability. By using available high-pressure hydrogenation installations, capacity for cracking of vacuum distillates was also created in the VEB Leuna-Werke Walter Ulbricht. The process developed in Leuna for hydrocracking of vacuum distillates is particularly noted for its high selectivity and high specific weight rate of flow. Moreover, we are developing the cracking of vacuum residue by means of a viscosity breaker, with the goal of obtaining additional raw materials for the hydrocracking process. In this manner it will be possible to increase the yield of clear products from petroleum from 48 percent in 1980 to 52 percent in 1985.

In the same time period the degree of utilization of our petrochemicals will increase from 8.8 to 12 percent. Significant measures toward achieving this are:

- a further extension of the recovery of normal paraffins by the Parax process.
- an increase in the production of aromatics,
- an increase in the production of olefins by improving efficiency and further development of individual process steps.

In the area of processing of natural gas, the process for low-pressure natural gas cracking was developed in the GDR and was completed for assuring the synthesis gas requirement at the VEB Leuna-Werke Walter Ulbricht. In the VEB Otto Grotewohl, Boehlen, a steam reforming installation for hydrogen production developed by us is being operated. The chief area of use for natural gas is the production of urea in the VEB Agrochemisches Kombinat Piesteritz [Piesteritz Agrochemical Complex]. In the installations to which I have referred, imported natural gas from the USSR is used exclusively. At present about 90 percent of the imported natural gas available here for the chemical industry is used as a source of materials. We will achieve a further increase of this share by the construction of a methanol plant.

The output of domestic natural gas, which has a nitrogen content of up to 70 percent, is used exclusively for energy.

A further potential raw materials source for the GDR chemical industry is the skimming off of chemical raw materials from the soft brown coal available in the GDR. Of the 250 million metric tons a year of the as-mined brown coal presently produced in the GDR, which corresponds to 62 percent of the primary energy production, approximately 12 percent is used in coal conversion processes as a source of materials. These are essentially the following areas of use:

- synthesis gas production including sulfur recovery,
- recovery of tars, light oils and reaction cokes from high- and low-temperature carbonization processes,
- acetylene production based on calcium carbide,
- recovery of montan wax by extraction.

The GDR has a long tradition of experience in these areas. At present we are engaged in further extending the chemical utilization of coal. This concerns in particular:

- carbonization with gas recirculation by the Lurgi [Spuelgas] process for the recovery of tars, light oils and brown coal carbonization coke,
- the further extension of carbide production through the use of high-performance and high-capacity carbide furnaces with simultaneous increased use of domestic brown coal,
- Stabilization of the existing synthesis gas producing installations using the fluidized bed principle (Winkler gasifiers) until a new coal gasification process which we are developing is put into operation.

Toward the achievement of this fundamental guideline for the use of carbon sources, inclusive programs for research and reduction to practice in the area of petroleum processing and petrochemistry and in the area of coal refining were worked out for the time period up to 1990 and beyond. In these programs the fundamental national economy targets, the main directions of development and the necessary procedures are determined. The work is done jointly by the research departments of industry, of the Academy of Sciences and of the advanced schools and universities of the GDR.

For petroleum processing and petrochemistry we start with the premise that, for a constant amount of petroleum processed of about 19 million metric tons a year, the following fundamental national economy requirements are to be achieved:

- assuring the supply in amount and quality of motor fuels, lubricants, bitumen and energy sources for the national economy,
- supply to meet the demand for plastomer and elastomer processing, the fiber industry, production of surfactants as well as the lacquer and dye industry with petrochemical raw materials,
- manufacture of organic intermediate products for the following production lines: plant protective agents, pharmaceuticals and adjuvants for other branches of production.

The development of demand for these raw materials and intermediate products shows a long-term increasing trend. The result of this is a compelling necessity to continue the structural transformation in petroleum processing already begun in the GDR through further construction and extension of capacities for more thorough petroleum processing. The most important further steps to achieve this, besides erection of the previously mentioned catalytic cracking installation, hydrocracking installation and viscosity breaker, are the following measures:

- Replacement of crude gasoline as a pyrolysis raw material by use of heavy petroleum fractions such as gas oil and vacuum distillates. Corresponding research work is being carried out jointly with the Academy of Sciences of the GDR. Preparations for large-scale technical testing are under way at this time.
- Further construction and extension of cracking capacities for petroleum residuums, particularly vacuum residuums. We will try to solve this problem by cooperation among our countries within the framework of the general agreement of the CEMA for more thorough petroleum processing.
- Complete use of by-products formed in the pyrolysis process for making organic intermediate products of high value, e.g. the utilization of C₄ and C₅ fractions, the production of styrene, C₉ and C₁₀ aromatics; hydrocarbon resins and naphthalene.

By means of these measures, a fundamental step is being taken from "extensive" classical petroleum processing to a new "intensive" petroleum processing and petroleum chemistry in the GDR. Prerequisites are thus being created for the GDR to assure, in addition to satisfying the growing demand for motor fuels, the

raw materials base for the production of highly refined organic chemical products at an unchanged level of petroleum processing.

In the development of highly refined chemical products we are concentrating on the following main points, among others:

- preparation of a valuable assortment of plastics made of PVC and high- and low-pressure polyethylene, as well as the development of new construction synthetics and copolymers,
- further extension of fiber raw material production and development of valuable fiber types based on polyamides, polyesters and acrylonitriles,
- increase of capacity and assortment in polyurethane chemistry,
- increase in surfactant production by extension of alkylsulfonate production, more efficient production of alkylbenzene sulfonates, and development of a process for oxosurfactant alcohol production,
- production of valuable textile dyes,
- extension of the production of latex coating systems and, among others, of acrylics,
- enlarging and improvement of the assortment of household chemicals and cosmetics,
- increased production and enlarged assortment of plant protective agents, insecticides and growth regulators,
- pharmaceutical and microbial biocatalysts.

In consonance with this program of more thorough petroleum processing and increased refining, greater utilization of coal as a raw material is under preparation in the GDR. The already mentioned lines of

- gasification of brown coal for the production of synthesis gas and its further processing,
- low-temperature carbonization of brown coal for the production of liquid products as well as solid energy sources of high value,
- carbide production,

are included in this program in the following manner: Increased use of synthesis gas in the GDR chemical industry is under way through development of a new gasification process based on salty coal as a raw material; salty coal is not suitable for use in power stations. This synthesis gas is to be provided for the following areas of use:

- production of hydrogen for refining processes in petroleum processing, and production of coal liquids,

- extension of methanol production,
- production of hydrogen for direct hydrogenation of coal or substances containing coal,
- utilization of synthesis gas for the production of organic intermediate products.

With this development we want to achieve a gradual satisfaction of the increasing demand for motor fuels and organic intermediate products based on domestic coal, without requiring a major extension of petroleum processing.

I see a possibility for direct utilization of methanol as a motor fuel component. Appropriate investigations have been conducted jointly with the GDR's automobile construction industry.

It is not planned at this time to carry out conversion of synthesis gas to motor fuel according to the principle of the Fischer-Tropsch process in the GDR. We are of the opinion that the coal \rightarrow gas \rightarrow gasoline conversion represents the least favorable solution both from the point of view of investment and with respect to operating costs and personnel requirements. Comparative investigations of the Fischer-Tropsch synthesis coal hydrogenation and coal pyrolysis in connection with the hydrogenation of tars and light oils have shown this.

An application of the principle of the Fischer-Tropsch synthesis could bring us advantages in the synthesis of organic intermediate products with oxygen functional groups.

Studies taking into account experimental technical results obtained in the GDR before 1960 are being carried out at this time by the Academy of Sciences of the GDR. However, I consider that application of these processes will be necessary only at a time when all possibilities for using petroleum as a source of materials have been exhausted.

The Lurgi-Spuelgas carbonization installations operated in the GDR, which were erected in the mid-1930's, are now being rebuilt. Liquids produced in these installations and the highly reactive coke, a part of which is converted into synthesis gas by the fluidized bed gasification process, correspond to a petroleum equivalent of about 2 million metric tons a year. Thereby, important organic intermediate products such as phenols, cresol and pyridine bases are obtained directly; otherwise, they would be attainable only through complicated syntheses. Our main objectives in reconstructing these installations--48 carbonization units in all are being operated in the GDR--are:

- increase in the tar yield from coal,
- improvement in the quality of the liquid products formed,
- improvement in the energy efficiency of the carbonization furnaces.

We thus create the prerequisites for an increase in production of:

- electrometallurgical coke for the production of electrodes,
- oxidized paraffins for detergent production,
- hard paraffins and special paraffins for the candle and packaging industry.

For this the capacities for electrometallurgical coke production will be further enlarged and reconstruction of the low-temperature hydrogenation process will be carried out.

In view of the fact that the GDR has only limited supplies of carbonizable coal (coal with a bitumen content of about 15 to 20 percent), we have up to now not planned on a considerable extension of the carbonization and tar processing capacities. We are of the opinion that extension of the chemical utilization of coal must occur through the hydrogenation of coal and of substances containing coal. For this we are carrying out research with the objective of having a high-performance coal hydrogenation process available by about 1990.

We intend to continue the production of carbide as a raw material base for the chemistry of acetylene until after the year 2000 in the GDR. We will rebuild the available carbide furnaces in the Kombinat VEB Chemische Werke Buna [Buna Chemical Works Complex VEB] and gradually replace them with furnaces of modern construction, and thereby at the same time create prerequisites for achieving better energy yields and for using brown coal coke to a greater degree than heretofore as the carbon material. We will gradually replace the traditional acetylene chemistry conducted on this basis at Buna with syntheses based on acetylene for such products, which can only be obtained with difficulty using other raw materials. I am thinking here about setting up a chemistry on the basis of butyne diol and about the possibility of making polyols up to and including the synthesis of steroids.

This development of the GDR chemical industry which I have discussed requires research work of a broad scope to develop new processes and to further develop our existing technologies. To solve these tasks, we have built up close cooperative relations for mutual advantage with our brother countries, particularly with the Soviet Union. The large number of government and ministerial agreements underlines the importance which we all attach to these problems. As examples only, the following can be mentioned here:

- The general agreement of the CEMA countries for more thorough petroleum processing with the objective of dividing the work of process development and installation supply,
- the governmental agreements with the USSR for development and supply of installations for production of high-pressure polyethylene, polybutylene terephthalate, oxosurfactant alcohols and for the chemical utilization of coal,
- the governmental agreement with the CSSR for olefin cooperation,
- the understandings with the Polish People's Republic for cooperation in the area of coal hydrogenation,

-- the understandings with the Romanian Socialist Republic on cooperation and mutual supply in selected chemical products.

I see the main way for solution of our tasks as lying in close research cooperation between our countries. Only close cooperation of all CEMA countries in research and achievement of new processes and installations in these areas will allow us to solve the problems which exist in all our countries with similar sets of tasks rapidly and with high effectiveness.

The research and development tasks in the working out of new processes for more thorough petroleum processing and chemical coal utilization require enormous efforts. The Second Petrochemical Symposium will serve as a forum for exchange of scientific experience and of conflicting opinions, toward the solution of the existing tasks. I here state that we are ready for an even closer scientific and economic cooperation with all interested countries.

5586

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ENERGY CONSERVATION THROUGH USE OF HEAT PUMPS NOTED

Leipzig ENERGIEANWENDUNG in German Vol 30 No 1, Jan-Feb 81 pp 13-14
manuscript received 10 Nov 80

[Paper by Prof Dr Guenter Heinrich, engineer, director, refrigeration engineering program, Dresden Technical University; presented at GDR Council of Ministers Seventh Seminar on 'Efficient Use of Energy,' Halle, 15 Oct 80: "The Successful Use of Heat Pumps"]

[Text] The successful operation of several large heat pump installations resulted in the fact that in many sectors of the economy the use of heat pumps is presently being studied. Use studies by enterprises reveal

--on the one hand, that there are often false and exaggerated ideas about the possibilities for using heat pumps (Thus, for example, heat pumps cannot be used without additional heat sources in the form of waste heat or environmental energy.)

--but also, on the other hand, that more heat pump installations can be established than is generally assumed, ones which are favorable in respect to enterprise management and the economy.

Heat pumps cannot simply replace fuel heating systems. Heat pumps are very productive machines which must be fully utilized. Thus, the use of heat pumps presupposes a comprehensive industrial-energy process analysis which is aimed at achieving a large number of hours at full load.

An experimental structure like the one that has been in operation in Dresden since 1978 is one side of the coin; but is it also possible to design economical plants?

The heat pump installations in the Taubenheim Accumulator Works VEB is economical because it is replacing the planned night accumulator heating system and saves cooling water.

The project in the Naumburg Lumber VEB, Freyburg enterprise division, came into being since the tall smokestack which is necessary to avoid a high level of environmental pollution from burning raw brown coal was dispensed with. It is also economical because of cold-heat coupling. In the Schwerin Packing Materials Works VEB one heating plant building is saved. Additional heat pumps are not necessary since the existing refrigerating machines and those planned for expansion can take over the heating task as heat pumps.

In the cold storage facilities of the fruit drivers LPG [agricultural producer cooperative] and the Nauendorf KAP [cooperative production department] the existing refrigerating facilities are to be expanded into heat pumps in order to utilize the respiration heat of apples for heating.

Heat pumps can also be used to replace oil for heating purposes. One recommended variation makes possible an 80-percent saving of oil.

Studies in the Suepplingen LPG henhouses produced an economical solution for heating with heat pumps if the existing oil heating system is not simply replaced by heat pumps, but rather a solution is created which adjusts to the different demands depending on the ages of the chicks and young chickens up to the age when they are ready to be killed. In this way it is possible to manage with a substantially reduced heat output.

All the projects mentioned are more economical than conventional heating systems.

Yet in respect to energy management heat pumps are not important if heat for heating is available from cogeneration.

There are also other projects for which heat pumps are not indicated, for example, if the heating network requires a start temperature of 90° or if no additional energy flows can be coupled into the system and thus there would be nothing left but to replace the existing fuel heating system with heat pumps. As already mentioned, the most important experience consists in using heat pumps in the framework of comprehensive energy utilization with a large number of hours at full load.

What guidelines for use do our experiences now suggest?

Comprehensive energy utilization begins by reducing the heat output to the technically justified minimum. Reducing the heat output is possible not only by means of better thermal insulation. Designing buildings with tight joints is of great importance. The energy cost for uncontrolled ventilation is much greater than is often assumed. Ventilation systems which, particularly in industrial construction, often require more than 50 percent of the heat output, must be equipped for heat recovery by means of regenerators or at least with recuperators.

Our experiences consist in the fact that, with most projects involving heat pumps, regenerators or the recuperative circulation system for heat recovery from exhaust air are simultaneously in use. The design of the heat load is based on the calculation of the heat output, using TGL 26,760.

Comprehensive energy use with heat pumps requires the capture and coordinated interaction of all flows of energy in and around buildings. Why in the case of heat pump use is this kind of comprehensive process analysis indispensable? A heat pump is the only technical equipment which can couple energy flows with a feedback effect, that is, by raising the temperature.

Without the use of heat pumps, incidental energy flows beneath a certain temperature level are of absolutely no interest since they cannot be used. Even well water, which is used for process cooling, can first be used as a source of heat for heat pumps so that up to 40 percent of the water can be saved. Using hot water after the technological process as incidental energy with the heat pump or use before and after the technological process involves additional benefits.

Use of a heat pump also requires a comprehensive analysis of the heating system. Heat pumps in general and to a large extent can provide only low temperature start temperatures of 45°C. One must resign oneself to this bitter truth; but must one therefore give up right off if in the case of reconstruction one has only obsolete heating networks with 90°C? Heating units are occasionally oversized, and by using measures to reduce the heat output other reserves are developed so that one manages with maximum start temperatures of 60°C.

In that case the cost of installing additional heaters or a second heating system, for example, air heating, is no longer so large. If the floor has to be rebuilt, then in heavily used industrial buildings floor heating systems are also to be recommended in addition. In the case of new buildings which are not tied into district heating plants with cogeneration, then as a matter of principle low-temperature heating systems should be planned. Even if heat pumps are not used, investments must be made for the future. To be sure, that all sounds optimistic, in spite of all that, it is not always possible to convert to low temperature heating. If one is hampered by a high-temperature network, then start temperatures over 45°C are used only for a limited time below a specific outside temperature. If there is a high demand for hot water in the summer, then one can heat with a small heat pump in the summer and the transition period. This is the bivalent alternative approach.

The bivalent parallel approach is substantially better. The heat pump is designed for about 50 percent of the heat output and heats for the entire heating period with a maximum 45°C start temperature; below a specific outside temperature there is conventional booster heating to 60°C, that is, a so-called medium temperature. With this method, only 20 percent of the annual energy requirements need be produced for conventional heating. It must be realized that through this kind of shifting the smaller heat pump is used for almost the entire heating period, that is, with a large number of hours at full load.

Cold-heat coupling is of special interest. Wherever refrigerating machines are installed, the use of heat pumps must always be considered. That is an additional undisputed advantage: Fuel heating systems can only heat, heat pumps can also cool. Systems with cold-heat coupling naturally make possible better utilization of the very productive machines.

There is still much to be done in order to realize the central resolutions. Now, upon the initiative of the presidium of the Chamber of Technology of the Dresden Bezirk executive council, under the expert guidance of Dresden Technical University, a course to train energy specialists and designers is being implemented for all bezirks.

There are already 60 graduates and over 300 registrations.

Under the direction of the refrigeration engineering program of Dresden Technical University in cooperation with the Air and Refrigeration Technology Combine VEB and the Institute for Energy/ZRE a "Manual for Preparing to Use Heat Pumps" was developed which, in the case of these three institutions, can be referred to for followup use. It contains the collected experiences and is valuable aid for many enterprises in respect to industrial-energy process analysis in preparing to use heat pumps.

12124

CSO: 2300/200

CIVIL DEFENSE MEASURES DISCUSSED ON TV FORUM

Budapest ESTI HIRLAP in Hungarian 29 Jan, 12 Feb 81 p 6

[Article by Dr I.P.: "What Was Left Out of the Forum--Answers to Questions"]

[Text] The 25th part of the TV series, "For Our Peace of Mind," was a forum on civil defense. The viewers sent in so many questions that many went unanswered during the limited time of the broadcast. As announced, we will answer in our paper, in a series, the questions left out during the broadcast.

The Law

Question: Has the 1976 defense law also reached its goal in civil defense?
(Laszlo Andahazy, 24 Pava Street, Budapest)

Answer: Paragraph 47 of the 1976/I. defense law defines the obligation of civil defense. According to this law, the purpose of this obligation is "To prepare the population to prevent, eliminate and ease the effects, of destruction by weapons of aggression, natural disasters and other exceptional events, and to implement related rescue and salvage operations. The civil defense service is obligatory for men between the ages of 15 and 60 years, and for women between the ages of 16 to 60 years."

We will not quote the entire text, for the above clearly shows the purpose, character and duration of the civil defense obligation. The purpose of a law is fulfilled only if its implementation reflects its spirit and--as it is customary to say--its words. The civil defense law created an adequate--and newly regulated--legal basis for preparing the population and those working in civil defense organizations.

Civil defense leaders--council presidents, factories and the leaders of institutions--have effectively used their authority. Under their leadership, the civil defense organizations successfully prepared themselves for their tasks, and for the efficient preparation of the entire population. Our organizations took an active part last year in averting flood damage in the Koros region, and in organizing and implementing the relocation and housing of the population.

There were two county and 14 district and city demonstration drills between 1977 and 1980 where tens of thousands of people by giving up their free time

demonstrated their preparedness and high-level civic responsibility and discipline.

Competitions

Question: Do you think the preparation of youth for civil defense is adequate?

Proposal: to set up competitions to improve effective preparation.

Answer: The preparation of youth for civil defense is taking place in several, complex ways. In secondary schools, the students' preparation is compulsory: within the framework of defense studies, the boys take 16 class-hours and the girls 44 hours to become familiar with basic civil defense, followed by a more advanced training in first aid. Those youths who do not continue their studies in secondary schools, are trained by the Hungarian Sport Federation for National Defense, also in a 16-hour compulsory civil defense training. The material covered is identical in both cases.

Students in higher education also become familiar, within the framework of defense studies, with civil defense as it is related to their future profession, e.g., students of architecture are familiarized with the planning, construction and maintenance of fall-out shelters and so forth, and are prepared for the tasks of a civil defense company commander. In higher institutions specializing in the training of teachers, the methods of teaching national defense and civil defense are taught.

The civil defense companies of the KISZ's Youth Guard are manned by volunteers. The youths are very successful both in training and the actual work, e.g., in drills and flood control. They carry out their voluntary duties with responsibility and discipline. They demonstrate their readiness every two years either at the KISZ Youth Guard's national inspections or at the special competitions of civil defense companies. They are expected to become the well-prepared company commanders of civil defense in the future.

Tough competitions are also organized for the youth with the help of the capital city and county civil defense commands, the KISZ, the educators and the factories. For example, the annual Civil Defense Days of Angyalfold or the Pest Megye Youth National Defense Days--we could have a whole list of similar competitions from Vas megye to Mateszalka--have already become traditions. The positive mobilizing and learning effects of these competitions are well known. We are trying to expand and support this method as much as possible. We call the attention of our readers to the fact that this year is the centenary of the foundation of the Hungarian Red Cross. In honor of this event, the Hungarian Red Cross announced a national competition of first-aid units. We request that the readers enter this competition.

Alarm

Question: In case of a flood or earthquake, how fast can civil defense be mobilized? (Laszlo Philipp, 4/B Varga Gyula Park, Budapest)

Answer: Depending on the kind of natural or industrial disaster, from the time receipt of the first report and on the type of the available civil defense units,

they are ready for rescue or other tasks within a few hours. In one of our factories, for example, at the director's decision, the civil defense unit, made up of workers of that shift, was already on the scene within an hour after a local industrial disaster. This time increases in case of a larger-scale natural disaster, for it includes the alarming assembly, supply and organization of the units--including those workers who do not happen to work and are at home--, reaching the disaster area, and the organization of the rescue. This takes, realistically, a few hours. In our experience--we are thinking here of the 1956 earthquake at Dunaharaszti, 1970 Tisza flood and the 1980 flood in the Koros area--this time is enough for the civil defense forces to begin to carry out their tasks, to take part in the rescue, to avert disaster and to protect the population and livestock.

[12 Feb 81 p 6]

[Article by Gabor Tokai: "Food, Oil, Defense, Care--Cities, Farming, Factories"]

[Text] We continue to answer questions sent to the TV's civil defense forum.

The Population

Question: What solutions and measures in a given situation serve the defense of factory workers and citizens? (Tibor Gerebics, 3 Desi Huber Street, Budapest, and Mrs Ferenc Eilinger, 127 Budaorsi Avenue, Budapest)

Answer: In the capital city and the large cities, defense planning includes both the relocations and shelters. In addition to the existing shelters which include the subway network, other shelters are being built in the danger zone where necessary and where it is feasible technically and economically.

Question: What kind of measures have been taken by the responsible civil defense organs to allocate shelters for those living in residential areas, such as children, women and the elderly? Is their security guaranteed in case of a possible unexpected event? (Istvan Bozso, 3 Sarfu Street, Budapest, Mrs Jozsef Dajka, 8/A Frakno Street, Ferenc Demko and Ferenc Nagy, 77 Vaci Avenue).

Answer: The objective of a nuclear strike is to destroy a country's important industrial sites, public works and transportation network. This is the basis on which we can with great probability delineate the vulnerable areas. In a specified phase of a tense international situation, the population, including those living in apartment complexes, will have to evacuate these areas. The civil defense organization of the receiving area will take care of the defense of the relocated persons against secondary effects, e.g., radioactive contamination. The deep subway stations in the vicinity of apartment complexes, the tunnels, the existing shelters, the emergency shelters built during the warning period, and the protective structures against contamination will serve the population remaining in the city.

In the Countryside

Question: 1. How will protection of agricultural products and livestock be carried out? 2. How can the protection of oil drilling towers, oil production equipment and lines be organized? 3. In chemical plants, disaster may occur even in peace time. What can the civil defense do in such a case? (Endre Kiss, 82-84 Gergely Street, Budapest)

Answers: With reference to the first question, we can say, first of all, that food is produced and distributed, even in peace time, according to strict public health standards. These standards cover not only quality but also technology and packaging. For this reason, both in the production and processing phases and then during distribution, quality is guaranteed by specific requirements, technological specifications, strict hygiene, control and classification. In case of war, production, processing and distribution will necessarily remain under control, there is still the danger of nuclear or other contamination. This is why we need special regulations. In our country, appropriate resolutions prescribe the protection against contamination and infection of food, livestock, feed, seeds for planting and all kinds of water. Almost two decades of work have gone into protecting our agricultural products. These efforts include constantly improving agricultural production and animal husbandry and the use of advanced processing technology and more refined packaging and supplies.

In farming, the absorption of radioactive materials from contaminated fields can be minimized with special crop rotations, special plant cultures and artificial fertilizers and additives. Existing stands of growing crops cannot be protected from direct pollution, it is thus expedient to plan for rapid harvesting. Harvested crops put in silos and storage can be safely protected when hermetically sealed. Livestock can be protected for a few hours in dustfree stables. Protection for a few days or weeks requires filtered air, reserve feed and water.

Packaging

Raw materials polluted with radioactivity or any basic material in a polluted environment can only be processed with special technology. Finished food products can be protected against any further pollution or infection by appropriate packaging. Canned food and food packed in hermetically sealed plastic or aluminum foil can be polluted only on its surface, and this can be removed. Packaged food can also be protected from pollution in hermetically sealed buildings and containers, and unpacked food in freezers. In the given situation, foodstuffs must always be inspected for safe consumption.

The answer to the second question is, first of all, that this equipment must be protected only against mechanical hazards.

The drilling tower must be supported from more directions than usual to withstand possible or expected excessive stresses.

The technical construction of the producing oil wells is such that the necessary oversizing can be implemented. Lines running above ground cannot be

protected, but the probability of their damage is relatively low. Underground lines can be cut, broken or damaged above-ground or just below ground surface in case of a nuclear explosion nearby. Protection against such, improbable, damage is possible in principle, but it is unnecessary and very uneconomical.

The Chemical Industry

The third question is very timely, recently we have heard about several such cases abroad. Fortunately, no such disasters have yet occurred in our country. In all of our chemical plants, the so-called havarria [emergency] plans were worked out for the prevention and stopping of the malfunctions. This document is a plan of tasks and implementation, a basis on which the specialists--and, in an emergency, the rescue squads--intervene. The basis of the plan is that the malfunction can be stopped, and the environment will not be damaged. Civil defense forces have already been used in such situations. The complex plans, which also include the protection of the area's population and the activity of civil defense forces, are made for the prevention and aversion of the disaster. These questions will be dealt with in more detail in March, in the 26th TV series of the "For Our Peace of Mind."

9414

CSO: 2500/170

VOLAN'S 1981 TRANSPORTATION TASKS DESCRIBED

Budapest MAGYAR HIRLAP in Hungarian 30 Apr 81 p 5

[Article by Kalman Tapolczai, director general of Volan: "Volan's Tasks This Year"]

[Text] Changing economic conditions have influenced significantly also the work of Volan. The development of passenger transport continues to remain one of our most important tasks. The ridership of Volan buses is increasing by more than 4 percent a year. Our main objective is to fully satisfy the demand for passenger service, and we are preparing to transport 1.6 billion passengers. The fact that this will be the first year when the number of passengers in local mass transport will exceed the number of passengers in intercity service deserves special attention. It means that we will be developing at a faster rate particularly municipal and suburban transportation. In intercity service, due to changes in the number of passengers, we will abolish those parallel runs where the use of rail service is more favorable. Of course, we will do this on the basis of time tables compiled in cooperation with MAV [Hungarian State Railways].

Improving Quality of Passenger Service

We intend to improve the quality of passenger service by employing and introducing modern operating and work-organization procedures that provide greater convenience for passengers and improve operations. Computerized planning and scheduling of local runs will continue, and also other elements of control will be computerized.

We will speed up mechanization of the issuance of tickets and expand the information network that aids dispatching. Very many of our clients demand contractual bus service, and the use of chartered buses is becoming increasingly popular.

Better use of the buses owned by public institutions is exceptionally important, in the interest of the national economy. We plan to use the available buses of public institutions on the most frequented lines, particularly during the morning and evening rush hours. In addition, we would use these buses also where the scheduled Volan buses have to detour from the main

route in favor of a few passengers, which actually causes substantial delays for riders on the main route. Naturally, the public institutions must use their buses primarily for their own group transportation tasks, because it would be entirely unreasonable and unsound if, in the case of scheduled runs, parallel service were to develop, without any coordination.

On a Large Scale

The more moderate growth rate that evolved in recent years will continue to be typical of freight transportation. The over 2-percent increase in [ton-kilometer] performance will represent a minimal growth in comparison with years past. Freight transportation will remain a buyer's market, and consequently there will be stiff competition. In this situation the acquisition of new business will require great effort from every trucking enterprise.

By utilizing the advantages of its large-scale organization, Volan will strive primarily to undertake and handle, comprehensively and with due consideration for the interests of both parties, the shipments of public agencies and other large-volume shippers whose shipments can be organized on a large scale. The number of such contracts for 1981 is increasing sharply.

Our plans include providing wider and better service also for the population. For this purpose we are expanding our network of agencies, increasing the proportion of light trucks, and expanding our fleet of taxis, semi-independent taxis, and rental trucks.

I think it is exceptionally important to further strengthen the already fruitful cooperation between MA' and Volan. This year we incorporated in a separate chapter of the plan the specific tasks of such cooperation, defining the joint tasks in passenger service and freight service. In freight transportation, for example, we are jointly seeking new business. We will assume from public agencies (nationally they ship about 300 million tons a year) those shipments which can be hauled to their destinations more economically through cooperation between MAV and Volan, at through rates.

The further development of the mechanization of loading, and the complete introduction of a modern transportation chain belong among the tasks of freight transportation for this year and the subsequent period. In this work we must increasingly use the methods and elements of domestic freight forwarding. Our tasks include the elaboration of domestic forwarding behavior and technology, and suitable evaluation of practical experience. This year we will elaborate also Volan's principles for the development of warehouses and warehousing.

In addition to the practice of loading and of accepting cargo by weight, complete service includes also packaging for shipment. The No 23 Volan Enterprise has specialized in the quality packaging of export shipments. As coordinating project manager for packaging, it also provides assistance to the individual Volan enterprises that wish to introduce the packaging of domestic shipments.

Complete Service

Although at a slower rate, the further development of Volan bus service is nevertheless continuing. A new terminal has been commissioned in Monor, and the terminals in Szombathely, Satoraljaújhely, and on Ifju Garda Road in Budapest will undergo considerable expansion. New bus stations will be completed in 1981 in Dunaföldvár and at the new Budapest Sport Palace.

We will procure 2,085 trucks, 806 trailers, 110 loading machines, 800 buses, and nearly 700 cars to improve taxi service.

Our transportation plan is based on the estimated foreseeable demand. The fleet necessary to supply this demand is available. Volan Trust and its enterprises are prepared to increase their transportation capacity, through the better utilization of the fleet, through operational, technical and organizational measures, and by extending the operating time. In this way it will be possible to haul 2 to 3 million additional tons of freight in excess of the plan.

1014

CSO: 2500/243

DETAILS GIVEN ON JANUARY 1981 LIVESTOCK CENSUS

Warsaw RADA NARODOWA GOSPODARKA ADMINISTRACJA in Polish No 6, 21 Mar 81
pp 26-28 and Back Cover

[Article by Wieslaw Mlynarczyk: "January Census of 1981 Livestock"]

[Text] The general census of livestock herds, as of 31 December 1980 and 1 January 1981, conducted by the Central Office of Statistics on private farms in January of this year, and data reported by the socialized farms have already shown the effects of the fodder difficulties resulting from the drop in potato crops and the drop in the harvests of hay and green fodder from grasslands.

In comparison with the results of the agricultural census of January 1980, the January census of this year has revealed a drop in herds of:

- Cattle by 827,100, that is by 6.8 percent, including 174,800 cows or 3.0 percent;
- Hogs by 2,249,400, that is 10.7 percent, including 327,400 gilts or 13.8 percent; and
- Sheep by 143,800, that is 4.0 percent.

The unfavorable changes in the livestock herds occurred both in the unsocialized sector and in the socialized sector, although to a lesser degree in the socialized economy. This is because the drop in the cattle and hog herds in the specialized economy applied only to the consumption herd, while the breed herd in January of this year was even slightly higher, 2.6 percent for cows and 2.2 percent for gilts, than in January last year.

The state of the breed herds of the various kinds of livestock on 1 January 1981 and the changes occurring in comparison to last year are illustrated by the data in the table located on the back cover.

As a result of the unfavorable changes in the herd, the animal stock has declined very conspicuously with respect to the cropland area. In

comparison to 64.1 animals per 100 hectares of cropland in January 1981, the average throughout agriculture this January was 59.8 head, while the hog stock diminished from 110.5 in January 1980 to 98.9 head. At the present time the greatest intensity in breeding livestock per sector is being achieved by the socialized farm where there was an average stock of 65.4 cattle, 117 hogs and 30.1 sheep per 100 hectares of cropland, contrasted to 92.7 hogs, 57.9 cattle and 14.4 sheep for every 100 hectares of cropland in the unsocialized economy.

Cattle Stock

The January census of this year revealed a drop in cattle stock in almost every age and use group, with the exception of bull-calves from 6 months to 1 year old. A particularly sharp drop in comparison to the state last year is found in the number of calves, especially those more than 6 months old, since it amounted to 12.2 percent, and in the stock of breed bulls, older calves and other cattle up to 22.5 percent. The drop in cattle stock will undoubtedly produce a drop in supplies at marketing points for beef slaughter animals throughout the current year, but must not be allowed to affect the further increase in cattle raising. The potential opportunities for rebuilding the cattle herd were considerably limited by the drop in the number of cows compared to the previous year, by 3 percent, and in the number of 1-year old and older heifers, by 7 percent. Thus it is possible to conclude that, if the current method of administering the cattle herd is continued, the decrease in the numbers of this animal can extend to the beginning of next year as a result of the drop in the number of cows and heifers.

Countering the decreasing trends in the cattle stock will require an increase in the birth of calves and restrictions on their slaughter on private farms, where the number of cattle has recorded a drop of 655,700 head, that is, 7.4 percent, according to the January census.

In the unsocialized sector the drop in cattle appeared in all age and use groups, with the sharpest drop in the cattle stock being recorded in the group of young beef cattle (bull-calves from 6 months to 1 year old) by 15.2 percent, and 1-year old and older fattening cattle by 14.6 percent. In this sector the stock of heifers from 6 months to 1 year old dropped by more than 11 percent, while the decrease in 1-year old and older heifers was 7.6 percent and the decrease in cows was 3.9 percent.

In comparison to the state in January 1980, the cattle stock in January this year in the socialized economy had diminished by 171,400, that is, 5.1 percent, caused to a certain degree by the reduction in purchases of young cattle from the unsocialized sector. Despite the reduction in the cattle herd in general in the socialized economy, the breed herd of cows increased by 2.6 percent. Thanks to the larger number of cows on socialized farms than a year ago, there are potential opportunities for rebuilding the cattle herd in this very year.

The unfavorable changes in cattle breeding on a territorial base were recorded in all voivodships, but to a very different degree of intensity.

The dimensions of the drop in the cattle stock in January of this year, with respect to the January 1980 state, were found as follows in the individual voivodships:

<u>To 5%</u>	<u>5-10%</u>	<u>10-15%</u>	<u>Drop over 15%</u>
Ciechanow	Warsaw City	Bialystok	Krosno
Elblag	Biala Podlaska	Bydgoszcz	Rzeszow
Gorzow	Bielsko	Chelm	
Kalisz	Czestochowa	Kielce	
Legnica	Gdansk	Lodz City	
Leszno	Jelenia Gora	Przemysl	
Lomza	Katowice	Tarnobrzeg	
Olsztyn	Konin	Torun	
Opole	Krakow City	Wlaczawek	
Plock	Koszalin	Zamosc	
Siedlce	Lublin		
Sieradz	Nowy Sacz		
Slupsk	Ostroleka		
Suwalki	Pila		
Szczecin	Piotrkow		
Zielona Gora	Poznan		
	Radom		
	Skierniewice		
	Tarnow		
	Walbrzych		
	Wroclaw		

The drop in the cattle stock in 12 voivodships, in which the stock diminished by more than 10 percent in comparison to 1980, must be considered as very high.

Such a great fall in cattle can be explained by the limited fodder stocks in some of these voivodships, that is, mainly in those in which the fodder stocks were reduced by over 20 percent for the 1980-1981 period in the estimates of the State Agricultural Production Inspectorate [PIPR], and where there is more stock than the national average. For example, this situation existed in the Krosno, Przemysl, Rzeszow and Torun voivodships, where the cattle stock per 100 hectares of cropland still exceeds 60 head, despite a significant drop in cattle, accompanied by a large decrease in fodder crop harvests.

On the otherhand, there is no way in which limited fodder stocks can explain the great drop in cattle in the Bialystok and Chelm voivodships, where the ratio of cattle to the cropland area is among the lowest, and where the changes which have occurred have resulted in a current level

lower than 50 head per 100 hectares of cropland.

Likewise the current disproportion, amounting to more than 40 percent, between voivodships in cattle stock per 100 hectares of cropland, does not seem to be completely justified. This stock is as follows in individual voivodships:

<u>Up to 50 head</u>	<u>50-60</u>	<u>60-70</u>	<u>Over 70 head/ 100 cropland hectares</u>
Warsaw City	Bydgoszcz	Czestochowa	Bielsko
Biala Podlaska	Ciechanow	Gorzow	Elblag
Bialystok	Gdansk	Kalisz	Krosno
Chelm	Jelenia Gora	Katowice	Legnica
Radom	Kielce	Krakow City	Leszno
	Konin	Plock	Nowy Sacz
	Koszalin	Poznan	Opole
	Lublin	Przemysl	
	Lomza	Rzeszow	
	Lodz City	Sieradz	
	Olsztyn	Szczecin	
	Ostroleka	Tarnow	
	Pila	Torun	
	Piotrkow	Walbrzych	
	Siedlce	Wroclaw	
	Skierniewice	Zamosc	
	Slupsk	Zielona Gora	
	Suwalki		
	Tarnobrzeg		
	Wloclawek		

While it would be difficult to conclude that the cattle stock indicator for the entire country in relation to cropland should amount to 70 head per 100 hectares of cropland, there should certainly be 60 head of cattle per 100 hectares of cropland. Similarly, in the half of the voivodships (25) in which the cattle stock is lower than this figure, measures should be adopted for the purpose of intensifying cattle breeding.

Hog Stock

According to the January census of this year the hog stock, in comparison to its state in January 1980, has dropped in all age and use groups, but most of all in the piglet group, by 14.4 percent, and in the gilt group, by 13.8 percent, including gilts in farrow by 18.0 percent. Thus the tendency to limit hog breeding did not only include the consumption herd, but the breed herd as well to a large extent, limiting reproduction in hog stock to at least the first half of 1981. The 18 percent decrease in gilts in farrow entails an almost directly proportional drop in piglets during the first quarter and in shoats for half a year. It

should be pointed out that the drop in gilts in farrow throughout agriculture is mainly the result of a decrease in the unsocialized economy, where the stock dropped by more than 21 percent, while the gilts in farrow in the socialized economy were only 0.2 percent fewer on 1 January 1981 than in January last year.

The decrease in gilts in farrow in the unsocialized economy is explained by the sharp drop, noted in the fourth quarter of 1980, in breeding the gilts, 20.5 percent in comparison to the fourth quarter of 1979, a result of the reduction in profitability from raising piglets as a result of the decrease in their price in free-market turnovers. The free-market prices for piglets last October and November reached the severely low level of 668-777 zlotys apiece. Only in the last 2 months have piglet prices shown a tendency to rise.

However, it should be underlined that the free-market prices this January for piglets returned to the level of the same period last year, and may be encouragement for intensifying breeding gilts and raising piglets.

The drop in the piglet stock noted in the January census of this year, in relation to the condition in January 1980, with its 14.4 percent throughout agriculture is the result of a sharp drop in this stock in the unsocialized economy, 17.6 percent, and a drop of only 1.5 percent in the piglet stock in the socialized economy.

The very steep drop in the piglet stock in the unsocialized economy, according to the January 1981 census, where the number of gilts in farrow was only 3.4 percent lower than in the previous year, indicates that the private farms were unable to raise piglets born in the fourth quarter of 1980 because of the large decrease in potato harvests, more than 40 percent in comparison with the 1979 harvests. Likewise the large drop in the piglet stock and in the shoat stock by 10 percent in the unsocialized economy is the result of farmers' limiting piglet raising on their own farms, along with increased sales in the fourth quarter of 1980. In the fourth quarter of 1980 a total of 508,800 piglets and shoats were sold, that is 14.2 percent more than in the same period in 1979. Some of these piglets and shoats had been destined for breeding, especially on socialized farms. During the entire fourth quarter of 1980 the socialized farms took from the unsocialized farms (by means of selling points and within the framework of direct purchases) approximately 1 million piglets and shoats, counteracting the possibility of a deeper drop occurring in the hog stock.

The considerably reduced number of hogs in January this year will be reflected by a limitation in the supply of pork slaughter animals, especially in the first half of 1981. This is already demonstrated by the progress in making contracts, since private farmers have concluded 20.5 percent fewer contracts to supply hogs in the February-April 1981 period than in the same period in 1980.

On a regional basis the drop in the hog stock in January this year, compared to last year, appeared on the following scale in 46 voivodships:

<u>To 5%</u>	<u>5-10%</u>	<u>10-15%</u>	<u>15-20%</u>	<u>Over 20%</u>
Gorzow	Warsaw City	Bialystok	Bielsko	Kielce
Koszalin	Biala Podlaska	Jelenia Gora	Chelm	Krosno
Olsztyn	Bydgoszcz	Krakow City	Czestochowa	Nowy Sacz
Opole	Ciechanow	Plock	Konin	Piotrkow
Pila	Elblag	Walbrzych	Lublin	Przemysl
Poznan	Gdansk	Wloclawek	Lodz City	Rzeszow
	Kalisz		Radom	Tarnobrzeg
	Katowice		Sieradz	Tarnow
	Legnica		Skierniewice	
	Leszno		Torun	
	Ostroleka		Zamosc	
	Siedlce			
	Suwalki			
	Wroclaw			
	Zielona Gora			

An increase in the hog stock in comparison to last year was recorded in only 3 voivodships, namely the Szczecin (0.4 percent), Lomza (1.3 percent) and Slupsk (2.4 percent) voivodships.

The example of the above voivodships demonstrates that a drop in fodder stocks for hogs, as a result of a decrease in potato harvests, need not directly entail a relatively sharp drop in the hog stock, for example, in view of the possibility of improving the fodder balance by purchasing protein fodder. This renders it difficult to use limited fodder stock to explain the decrease in the hog stock in 19 voivodships on a scale above 15 percent, and in 8 voivodships by up to and over 20 percent in comparison with last year.

In some of the voivodships with a sharp drop in hog stock, that is in the Przemysl, Krosno, Nowy Sacz, Rzeszow, Kielce, Tarnobrzeg voivodships, the fodder situation is not among the most difficult since, according to PIPR data calculated for grain, the grain and potato yields from 1 hectare of crops should make it possible to raise 5 and more hogs, while in voivodships with a worse fodder situation the converted yield of grain and potatoes from 1 hectare of crops should permit raising less than 4 hogs, for example 3.8 in the Skierniewice voivodship.

This leads us to think that in voivodships with the greatest decrease in hog stock, the causes of this condition are determined by factors other than fodder, particularly in light of the fact that the hog raising indicators for these voivodships are generally lower than the national average.

Currently the hog stock per 100 hectares of cropland is extremely different in the individual voivodships, amounting to:

<u>To 70 head</u>	<u>70-90</u>	<u>90-110</u>	<u>110-150</u>	<u>Over 150 head/ 100 hectares</u>
Cheim	Warsaw City	Ciechanow	Biala Podlaska	Kalisz
Jelenia Gora	Bialystok	Gorzow	Bydgoszcz	Leszno
Kielce	Bielsko	Katowice	Gdansk	Poznan
Krosno	Czestochowa	Konin	Koszalin	
Nowy Sacz	Elblag	Lublin	Legnica	
Przemysl	Krakow City	Lomza	Opole	
Radom	Lodz City	Olsztyn	Pila	
Rzeszow	Ostropole	Plock	Siedlce	
Tarnobrzeg	Piotrkow	Skierniewice	Szczecin	
Walbrzych	Sieradz	Slupsk	Torun	
Zamosc	Suwalki	Wloclawek	Zielona Gora	
	Tarnow	Wroclaw		

The very fact that currently the stock per 100 hectares of cropland in voivodships with the most intense hog raising is more than twice as high as in the voivodships with the least intense hog raising indicates that the potential possibilities of increasing hog herds, and thus of achieving the desired increase in pork production, are considerable on a nationwide scale. However, reaching this goal requires the consistent implementation of economic decisions **guaranteeing profitability in** breeding hogs and supplying the means of production for increasing livestock buildings on private farms.

The Editorial Board [represented by Lucjan Pajak] asks the author:

[Question] Against the background of this year's livestock census, what are the conspicuous results which you would like to share with gmina [rural parish] farmers?

[Answer] I would like the gmina and agricultural service leaders to treat agricultural censuses as an aid and guide for their own activity. I believe that a considerable contribution from the work which gmina farmers perform in conducting agricultural censuses and the census data can be used in every month in making decisions to assure conditions for the development of livestock raising in definite rural areas.

The gmina leaders should treat the census data as a source of information making it possible to adopt remedial decisions in good time, to counteract negative tendencies in stock raising even when a census does not indicate any major drop in stock.

Livestock as of 1 January 1981

Livestock as of 1 January 1981						
Item	All of Agriculture	Farms		All of Agriculture	Farms	
		Social- ized	Unsocial- ized		Social- ized	Unsocial- ized
<u>CATTLE</u>						
calves under 6 months	11336.5	3179.4	8177.1	93.2	94.9	92.6
heifers	1645.1	549.3	1095.8	87.8	90.7	86.5
from 6 months to 1 year	911.2	263.4	647.8	90.3	94.0	88.9
1-year old and older	1300.5	537.0	763.5	93.0	93.9	92.4
bull-calves from 6 mo's to 1 yr	945.0	461.5	483.5	102.5	131.3	84.8
breed bulls, older calves and others	869.1	526.7	342.4	77.5	73.1	85.5
cows	5665.6	821.5	4844.1	97.0	102.6	96.1
<u>HOGS</u>	18733.9	5648.5	13085.4	89.3	98.7	85.8
piglets under 3 months	5298.4	1236.1	4062.3	85.6	98.5	82.4
sheats from 3 to 6 months	6606.8	1984.7	4622.1	92.5	99.0	90.0
gilts 6 months and older	2048.3	436.4	1611.9	86.2	102.2	82.7
in farrow	1185.4	227.9	957.5	82.0	99.8	78.7
not in farrow	862.9	208.5	654.4	92.8	104.9	89.5
porkers, bacon hogs	4780.4	1991.3	2789.1	90.6	97.7	86.1
<u>SHEEP</u>	3489.6	1452.5	2037.1	96.0	97.0	95.3

The gmina agricultural service, which has been taking a direct part in conducting censuses for many years, can simultaneously treat the census activity as direct contact with farmers, and use their stay on farms to give advice and to make very important recommendations in the area of livestock production organization.

With respect to the livestock census of this year, two particular contrasts were revealed in the cattle, hog and sheep stock per 100 hectares of cropland on a voivodship distribution. This demonstrates that proper remedial activity was not undertaken on time in many gminas. The cause of the decrease in stock has been sought only in the decline in potato and hay yields, while subject causes for the drop in livestock on many farms have not been made clear.

6806

CSO: 2600

PLANS TO DEVELOP PRIVATE SECTOR IN TOURISM

Zagreb VJESNIK in Serbo-Croatian 25 Apr 81 p 5

[Article by Vlasta Kovac: "The Conception and the Vacillations"]

[Text] Recently we have been hearing from various quarters and from the various republics about the most recent initiatives to channel private money into construction of tourist facilities among other things. A month ago, for instance, at the Fair of Sports and Tourism in Sarajevo information about "One Hundred Small Pensiones" was distributed to representatives of clubs of Yugoslav employed abroad; this has to do with the idea of the Tourist Federation of the city of Sarajevo to build small private hotels at the foot of Igman and Jahorina after the Austrian model; they are supposed to be ready before the 1984 Olympics.

The private investors, for which a competition has already been advertised (conditions: the hosteler's examination and the capital), would enjoy fairly large tax exemptions: specifically, they would be exempted from payment of tax in the first year of operation, they would pay only half over the next several years, and the banks would also be involved in this effort by granting long-term credit at favorable rates of interest for construction of these pensiones.

Construction of residential developments consisting of private apartments and weekend cottages at attractive sites on Jahorina and Igman has also been announced; the owners would have to agree to make their future apartments and vacation cottages available to work organizations in the hotel industry and to tourist agencies.

There Has Been Progress

The capital of individuals has also been used to build apartments in Struga on the shore of Lake Ohrid, located in the first Eurotel (a Swiss hotel chain); this was done by the Agricultural Bank of Skopje granting credits to the purchasers of those apartments, one basis for this being their sale of foreign exchange. Reportedly 70 percent of the capacity has already been sold, and Palasturist of Skopje has undertaken to organize the renting out of these apartments. At Bovec in Slovenia the residential development Kaninska Vas, which has about 400 privately owned apartments, has been built with private money; when the owners are not using them themselves, they turn them over to the hotel organization.

Kaninska Vas is a carbon copy of Cervar Porat in Istria, which was the first attempt through the organized mediation of the socialized sector of the economy to use and attract private capital for construction of tourist facilities, that is, to build rental vacation apartments. However, probably because of the abundant criticism addressed at one time to this model for the linkup between the socialized and private sectors the model Cervar Porat has so far not been copied in Croatia, though at Plava Laguna in Porec, the enterprise which stands behind it, they feel that this is a method that should be continued, only perhaps in a somewhat different way.

To be specific, plans have already been worked out for building the new tourist development Dajla near Novigrad, which Plava Laguna intends to finance in part with private money. Yet in Croatia, by contrast with the other republics where, to judge by the examples given, private money is being channeled into tourism without problems, the going is not so easy.

Only in the Planning Stage

The rigorous attitude toward private initiative in tourism is also largely the reason why in Croatia, though it has been a subject of discussion for some 10 years or more, private pensiones have not developed as outlined in the social development plans covering the periods from 1971 to 1975 and from 1976 to 1980. On the eve of passage of the last medium-term plan the advocates of private pensiones construction, that is, of small privately owned hotels, emphasized that in neighboring Italy, for example, these pensiones account for 17 percent of total accommodations in the hotel industry, and about 25 percent in Spain, while in Yugoslavia they account for less than 1 percent.

Other reasons given for stimulating this kind of construction were that it would put to use the capital of private individuals in Yugoslavia and also the funds of Yugoslavs employed abroad, the construction would be cheaper and more efficient than the construction of large hotels, which are most more expensive, employment would be increased, and the private tourist facilities would be included in the efforts of the tourist industry in a more organized way.

We should recall in this connection that back at the time when the republic Law on Hostelry and the Tourist Industry was being prepared (it was enacted in 1974 and amended and supplemented in 1978), in Crikvenica, Makarska and Mali Losinj alone there were about 120 so-called pensiones in private houses, that is, guests were provided accommodation and board in private homes. Many of these households had the facilities for operating private pensiones not just as a "cottage industry," but as registered hotel facilities owned by self-employed hostellers.

However, one reason that this did not happen is that the law, after stormy and lengthy debates, limited the number of beds in that kind of pensiones to 25 (the request was for 50), strict limitations were adopted on the seating capacity of the restaurants in these pensiones, and during the season, when business is most brisk, a seasonal increase in the number of employees was not allowed. At the same time a householder who rents out rooms on an amateur basis and is permanently employed in the socialized sector, which means that he has social security and health insurance, can rent out 20 beds.

Professionalism

The difference in earning potential between the owner of a private pensiones, for whom that pensiones is the only source of income, and the private landlord for whom this rental is only supplemental income, is obviously to the advantage of the latter, and it is therefore no wonder that there is little interest in running private pensiones. It suits people better to have dual status in their economic activity, that is, to have one foot in a hotel where they are employed and the other in their own house, which is full of guests.

Instead of using public instruments to orient tourist homes toward professionalism and thereby encourage people who accommodate tourists in their homes to open small family-run private hotels with a homey atmosphere, to send their children to hotel and restaurant schools in order to take over this pensiones in the household and run it as an independent hotel and restaurant facility, the effort stopped halfway and became entangled in things not fully stated.

In certain local communities confronted by the rapid enrichment of private tavern-keepers there has been and is today strong resistance to any more open attitude toward this type of private initiative. The consequence is that the private guest-house has not been afforded the possibility of developing from an amateur operation toward professional hostelry, which would not be competition, but would be a desirable supplement to the hotel industry.

At the same time the private landlords, that is, the guesthouses, thanks to the new hotels that have been built, have been getting rent from tourism in which they have not invested even a dinar, and today those Adriatic opstinas are not rare in which the annual net supplemental income of private individuals from renting out rooms exceeds the accumulation of the socialized sector.

Will There Be Progress

The development of "small business" is now on the agenda in Croatia, and the question of building private pensiones has again been raised in the tourist industry. This is indeed advocated by the republic committee for tourism, whose chairman Ante Ukic sees the private pensiones as a type of establishment whose construction should be preferred at sites specifically developed for this purpose and which in a linkage with the socialized sector would take over the handling of commercial, entertainment, athletic and other activities and indeed the complete organization of marketing.

The conception is worthy of attention; however, won't it be frustrated by those same vacillations which have hindered the development of private pensiones as imagined in the two previous medium-term plans, when they were supposed to experience a boom? Or perhaps this time what is being done in other communities will have an impact on the steps we decide to take.

7045

CSO: 2800

LARGE BELGRADE, ZAGREB FIRMS SIGN COOPERATION ACCORD

Zagreb VJESNIK in Serbo-Croatian 25 Apr 81 p 5

[Article by Zoran Gusic: "In Joint Ventures"]

[Text] Two leading economic organizations (each the country's largest in its own field), INA (Petroleum Industry of Zagreb) and GENEX (General Export of Belgrade) have just begun to prepare programs for cooperation which in Yugoslav business circles is already being announced as an economic event of the first order, one important to the entire country.

A meeting has been held on this in Zagreb between the management teams of INA and GENEX, a meeting which was also attended by Dr Emil Ludviger, engineer and vice chairman of the Croatian Executive Council and responsible in the republic government for foreign economic relations, as well as by managers of Astra of Zagreb, a work organization for foreign trade, SOUR [complex organization of associated labor] Jugotanker of Zadar, and others.

Strength and Reputation

Following the meeting the chairmen of the business boards, Vladimir Lemic of SOUR INA and Milorad Savicevic of GENEX, declared in a conversation with newsmen that up to now there had been relatively very little cooperation between INA and GENEX, which is all the more striking in view of the size and strength of these two firms and the reputation which they have in Yugoslavia and abroad, as well as their importance in our economy generally and in the fuel and power industry and foreign trade in particular.

When we bear in mind that INA accounts for three-fourths of the Yugoslav production of crude petroleum, more than half of the natural gas, and two-thirds of their total sales, and recall as well its role in the petrochemical industry at present and still more in the future, and so on, and also that GENEX, for example, accounts for slightly more than 10 percent of total Yugoslav exports (last year total revenues were \$1.65 billion, \$975 million of which were exports!), it is not difficult to judge the kind of potential that lies in cooperation and joint ventures between INA and GENEX and their joint action in Yugoslavia and abroad.

It can be said that the foundations were laid at the meeting in Zagreb for long-term collaboration, first, in export ventures and in importing certain sizable

quantities of particular commodities, especially raw materials for the fuel and power industry. Possibilities were also examined for joint efforts on the markets of the developing and underdeveloped countries and for inclusion of the Yugoslav economy in the international division of labor through export-import transactions in specific and definite areas.

Fuel and Power in First Place

The problems of energy were put foremost, primarily in order to investigate possibilities not only for importing energy, but also for promoting and expanding exports related to the importation of energy. In response to the newsmen both Lemic and Savicevic referred to the importation of liquefied petroleum gas (propane-butane), since at this moment this is the derivative most urgently needed and, it can also be said, the one for which the shortage is greatest.

Of course, it is not just a question of importation, but also of joint construction of installations for receiving the gas, transporting it and the like. Moreover, agreement on export transactions to accompany that importation is involved. There will be a joint effort to carry out programs not only of mutual common interest, but programs of interest to Yugoslavia as a whole.

In all these and other transactions INA and GENEX also remain open to all other economic organizations in Yugoslavia. In confirmation of that Ivan Pasa, chairman of the business board of SOUR Jugotanker (Yugoslav Tanker Shipping Company of Zadar) told a VJESNIK newsmen that Jugotanker has already chartered a special vessel for carrying chemicals, and for a beginning a contract has been signed for a vessel to carry petrochemical raw materials, that is, liquefied petroleum gas, and that a contract has been let for building one such specialized vessel this year, and a contract is in the work for construction of still another vessel which would be larger.

INA and GENEX have also agreed on collaboration and joint ventures in tourism (INA has already been carrying on a kind of collaboration with Jugotanker in this field for 5 or 6 years), while GENEX has for 24 years been involved in very large transactions and has a large role in developing and promoting Yugoslav tourism, including large capital investments in our tourist industry and in its capacities, and it is also involved in bringing a large number of foreign tourists to our country, especially through Jugotours, its network which has branched out all over the world.

Joint Efforts Based on Common Interests

"Although these two work organizations belong to altogether different fields of activity--INA in the fuel and power industry and GENEX in foreign trade--our two organizations still coincide in many respects, and there are very large opportunities for collaboration, joint ventures, joint efforts on the world market and joint inclusion in the international division of labor, and these are above all transactions involving the general interests of Yugoslavia as a whole," Milorad Savicevic, GENEX chairman, emphasized.

Cautioning that the problems of imports and indeed exports cannot be resolved over the short run, from case to case, INA chairman Vladimir Lemic said that only

long-term contracts and transactions facilitate Yugoslavia's better and more worthwhile inclusion in the international division of labor and in foreign trade generally; this would mean a much higher utilization of Yugoslavia's economic potential and there would also be much more benefit for Yugoslav interests as a whole.

Among the specific transactions is one in which the foreign trading partners would ensure utilization of available capacities of Yugoslav petroleum refineries, storage facilities, and so on. GENEX' worldwide network of branches with more than 550 of the most highly qualified representatives, both Yugoslavs and foreigners, who have been working with great success for GENEX for years, will be of great help in this effort. Augmenting exports and long-term ventures, especially export ventures, is not even imaginable without such a network.

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